

CENSUS 1951

WEST BENGAL



DISTRICT HANDBOOKS

DARJEELING

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THE CENSUS PUBLICATIONS

THE CENSUS PUBLICATIONS FOR WEST BENGAL, SIKKIM AND CHANDERNAGORE will consist of the following volumes. All volumes will be of uniform size, demy quarto $8\frac{3}{4}'' \times 11\frac{1}{4}''$:—

PART IA—GENERAL REPORT by A. Mitra, containing the first five chapters of the Report in addition to a Preface, an Introduction, and a bibliography. 609 pages.

PART IB—VITAL STATISTICS, WEST BENGAL, 1941-50, by A. Mitra and P. G. Choudhury, containing a Preface, 60 tables, and several appendices. 75 pages.

PART IC—GENERAL REPORT by A. Mitra, containing the Subsidiary tables of 1951 and the sixth chapter of the Report and a note on a Fertility Inquiry conducted in 1950. Some reprints and special notes. A report on the natural resources, trades and industries of the State with two bibliographies by Chanchal Kumar Chatterjee and Kamal Majumdar. 517 pages.

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A CATALOGUE OF THE BETTER KNOWN ANCIENT MONUMENTS OF WEST BENGAL by A. Mitra. Will contain brief descriptions of extant ancient monuments in each district of the State, dating up to 1800, with exact location and present state. Translations of all inscriptions found in West Bengal and an account of all invasions or conquests of Bengal mentioned in inscriptions. With many plates. About 600 pages.

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CONTENTS

	Page
Introducing the district	i—cix
Outline map of the district showing population by Police Station	cx
Appendices—	
I. Gazetteer and Statistics of Tea	cxi—cxix
Note I—Area and production of Tea Gardens in Darjeeling, 1952	cxx—cxxii
II. An Account of Land Management, 1871—1945	cxxiii—cxxvi
III. Joseph Dalton Hooker's Travel in Darjeeling district	cxxvii—clvii
IV. A Guide to the Lloyd Botanic Garden, Darjeeling by K. Biswas	clviii—cxovii
A list of rural and urban tracts in the district of Darjeeling	cxeviii—cxcix
SERIES 1—POPULATION	
<i>General Population Tables</i>	
1·1 Area, Houses and Population	1
1·2 Variation in population during fifty years 1901—51	2
1·3 Towns classified by population with variations since 1901	2
1·4 Towns and villages classified by population	3—5
1·5 Persons per occupied house, sex and livelihood class ratios	5
1·6 Approximate population of census charges	6—7
<i>Livelihood Tables</i>	
1·7 Towns arranged territorially with population by livelihood classes	8
1·8 Summary of livelihood classes and variations in population	9—12
1·9 Economic Table I—Livelihood classes and Subclasses (District and Tracts)	13 15
1·10 Economic Table II—Secondary Means of Livelihood (District and Tracts)	16—29
1·11 Economic Table III Selfsupporting persons classified as Employers, Employees and Independent Workers in Industries and Services by Divisions and Subdivisions (District and Tracts)	30—43
1·12 Classifications by Livelihood Divisions, Subdivisions and Groups	44—49
1·13 Livelihood classes classified by age groups	50—51
1·14 Livelihood classes by Educational Standards	52—57
<i>Age Tables</i>	
1·15 Age and Civil Conditions for Sample and Displaced Population in rural and urban tracts	58—63
1·16 Age and Literacy for Sample and Displaced Population in rural and urban tracts	64—68
1·17 Single Year age returns for Sample Population with rural and urban break-up	69—70
<i>Social and Cultural Tables</i>	
1·18 Household—Size and Composition (District and Tracts)	71
1·19 Mother tongue (District and Tracts)	72—75
1·20 Bilingualism (District and Tracts)	76—92
1·21 Religion (District and Tracts)	93—94
1·22 Scheduled Castes and Scheduled Tribes (Districts and Tracts)	95
1·23 Non-Backward Classes and Classes which are neither Scheduled nor Non-Backward (District and Tracts)	95
1·24 Abstract of Anglo-Indians (District and Tracts)	95
1·25 Migrants	96—99
<i>Displaced Persons and Nationality Tables</i>	
1·26 Displaced persons by district of origin and date of arrival in India	100—108
1·27 Non-Indian Nationals (District and Tracts)	109—110
SERIES 2—VITAL STATISTICS	
2·1 Birth and Death Record, 1941-50	111
2·2 Deaths from selected causes, 1941-50	112—113
SERIES 3—AGRICULTURE	
3·1 Persons cultivating own land or employing bargadar with size of land owned and/or given in bhag	114—116
3·2A Mean density (persons per sq. mile) cultivable and cultivated areas, irrigation, rainfall and distribution of crops, 1949-50	116
3·2B Agricultural Statistics, 1949-50	117
3·3 Cultivated Area (excluding orchards and gardens), 1949-50	117
3·4 Progress of cultivation during three decades	118
3·5 Components of cultivated area during three decades	118
3·6 Length of Government embankments	118
3·7A Statement of Land Utilisation in the district in 1944-5	119
3·7B Statement of Land Utilisation in the district in 1944-5 (Milan Khaara and Jhinishwar Statement)	120
3·8 Abstract of culturable waste land blocks of 100 acres and above, 1944-5	121

SERIES 3—AGRICULTURE—conold.

Page,

3-9	Results of crop cutting experiments during the year 1944-5	121
3-10	Results obtained by a detailed economic enquiry made in selected villages during the month of October, 1945	121
3-11	Rainfall and Rainy days, 1941-50	122
3-12	Mean Maximum and Highest ; Mean Minimum and Lowest temperatures in headquarters stations, 1948-50	123
3-13	Frequency of Floods and Droughts, 1891—1950	124
3-14	Production of foodgrains during three decades	125

SERIES 4—INDUSTRY

4-1	Census of Small Scale Industries	125
4-2	Growth of Factories, 1940-9	126
4-3	Factories classified by industry with average daily number of workers in each, 1949	126—127
4-4	Average daily number of workers employed in seasonal and perennial industries, 1940-9	127
4-5	Average daily number of workers employed in Jute Mills by class	128
4-6	Average daily number of workers employed in Cotton spinning and weaving Mills by class	128
4-7	Public Electric Supply Undertakings	129—132

SERIES 5—ADMINISTRATION

5-1	Land Revenue, 1941-50	133
5-2	Criminal Justice—Number of Criminal cases tried	133
5-3	Criminal Justice—Persons convicted or bound over	134
5-4	Civil Justice	134
5-5	Strength of Police, 1950	135
5-6	Jails	136
5-7	Number and description of registered documents and value of properties transferred, 1949	136
5-8	Co-operative Societies, 1949-50	136
5-9	Receipts of Excise Revenue	137
5-10	Receipts of Sales Tax	138
5-11	Receipts of Entertainment Tax	138
5-12	Receipts of Motor Spirit Tax	138
5-13	Stamps	139
5-14	Income Tax	139

SERIES 6—EDUCATION AND ENTERTAINMENT

6-1	Public Institutions and Pupils in 1950-1	140
6-2	Education (Number of Institutions and Pupils), 1941-50	140
6-3	Directory of High English Schools, 1951	141—143
6-4	Printing Presses and Newspapers	144
6-5	Cinemas	144

SERIES 7—PUBLIC HEALTH

7-1	Classified number of hospitals and dispensaries, 1950	144
7-2	Rural Health Centres	144
7-3	Hospitals and Dispensaries	145

SERIES 8—LOCAL BODIES

8-1	Receipts and expenditure of District Board, 1941-50	146
8-2	Receipts and expenditure of Municipalities, 1941-50	147

SERIES 9—COMMUNICATIONS

9-1	Village Roads	148—150
9-2	Roads and Bungalows	151—153
9-3	Length of roads maintained by public authorities on 31st December, 1948	153
9-4	Railway Stations	154
9-5	Post Offices	154
9-6	Polymetrical table of distances	155

SERIES 10—ANCIENT MONUMENTS AND FAIRS

10-1	Glossary of the better known ancient monuments	156
10-2A	List of important Melas	156
10-2B	List of Hats (Markets)	157

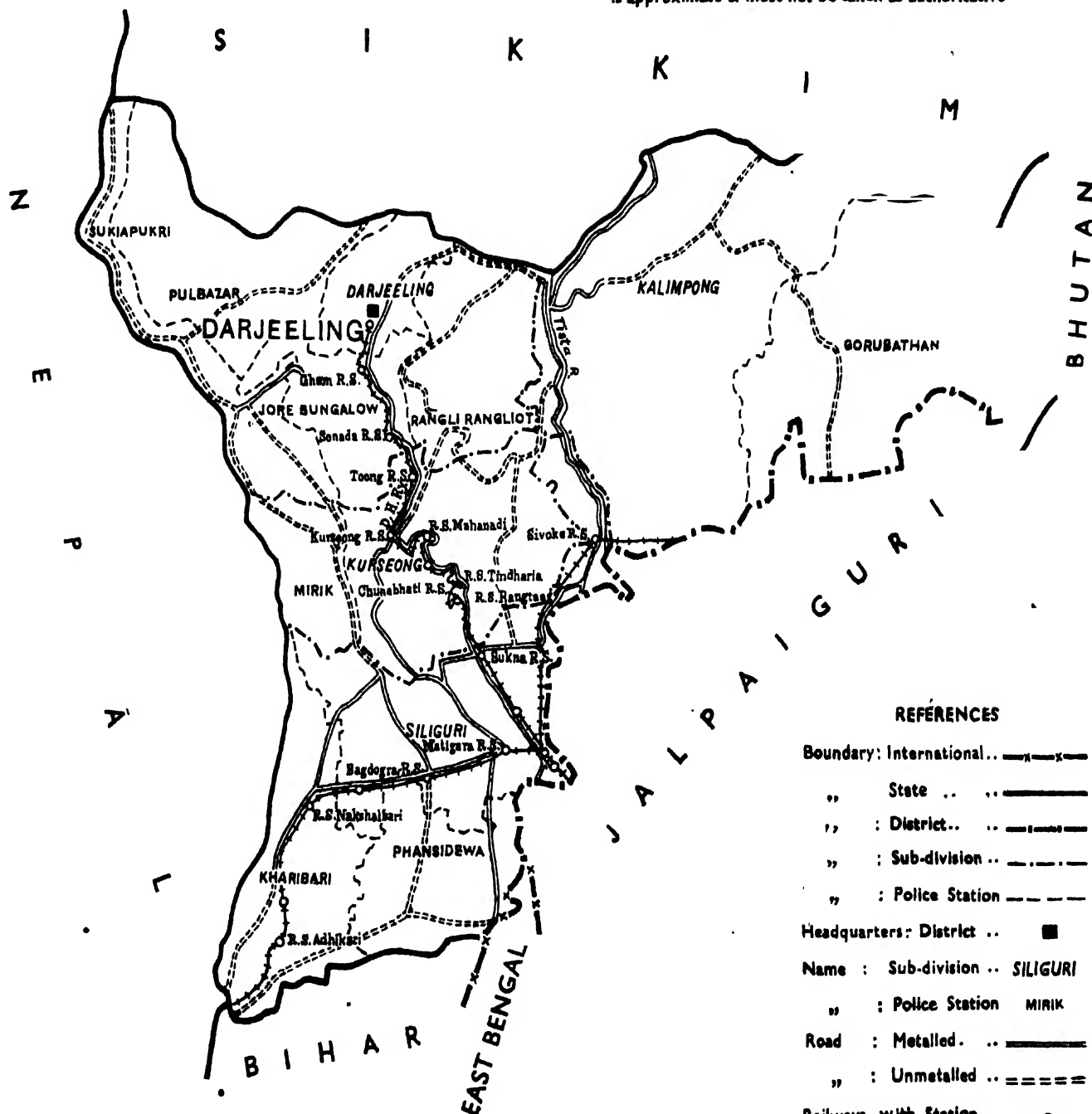
SERIES 11—VILLAGE DIRECTORY

11	Village Directory	158—178
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WEST BENGAL

DISTRICT DARJEELING

The boundary between West Bengal & East Bengal
is approximate & must not be taken as authoritative



Scale 1 Inch to 8 miles

10 8 6 4 2 0 10 20 miles

INTRODUCING THE DISTRICT

THE DISTRICT of Darjeeling has four subdivisions: **Sadar or Darjeeling, Kurseong, Siliguri and Kalimpong** with their headquarters bearing their respective names, the district headquarters being at Darjeeling. The **Sadar** subdivision covers the police station of Darjeeling, Jore Bungalow, Pulbazar, Sukhiapokri and Rangli Rangliot; the **Kurseong** subdivision consists of the police stations of Kurseong and Mirik; the **Siliguri** subdivision consists of the thanas of Siliguri, Kharibari and Phansidewa; the **Kalimpong** subdivision consists of the police stations of Kalimpong and Garubathan. There is a total of 671 *mauzas* borne on the Jurisdiction Lists of which 55 were recorded as uninhabited and 12 *mauzas* were included in the four towns of the district, leaving 604 rural inhabited *mauzas*. The area of the district according to the Surveyor General of India is 1,160 Sq. miles but according to the Director of Land

Records and Surveys, West Bengal, 1,200 Sq. miles. The discrepancy between the two estimates has not yet been reconciled. The towns of Darjeeling, Kurseong, Siliguri and Kalimpong are situated in the thanas bearing their respective names. The most populous town in the district is **Darjeeling** with a population of 33,605 followed closely by Siliguri with a population of 32,480. The third most populous town, Kalimpong, follows far behind with a population of 16,677 followed by the fourth town, Kurseong with a population of 11,719. All the towns are municipalities. Throughout this book a village has equated to a cadastrally surveyed mauza bearing a Jurisdiction List number. Within the district subdivisions have seen changes in area and number of villages and the following statement gives the account of these changes between 1881 and 1951.

Area, Village and Population in Darjeeling, 1881—1951

District and Subdivision	1951	1941	1931	1921	1911	1901	1891	1881
DARJEELING DISTRICT								
Area in square miles	1,199.7	1,192	1,212	1,164	1,164	1,164	1,164	1,234
Number of villages	604	578	531	302	504	509	1,317	941
Population	445,260	376,369	319,635	282,748	265,550	249,117	223,314	155,179
Sadar Subdivision								
Area in square miles	361.2	361	361	330	314	314	314	306
Number of villages	98	171	133	120	332	113	411	89
Population	189,631	147,327	119,178	106,511	102,577	91,953	79,041	52,318
Kurseong Subdivision								
Area in square miles	164.2	165	165	174	185	185	185	171
Number of villages	60	104	68	53	49	104	330	83
Population	65,713	59,986	51,996	40,357	41,207	45,187	44,045	26,937
Siliguri Subdivision								
Area in square miles	266.4	258	278	254	253	253	253	271
Number of villages	340	194	262	64	59	284	400	737
Population	116,475	90,014	80,258	75,787	72,246	70,466	72,997	63,241
Kalimpong Subdivision								
Area in square miles	407.9	408	408	406	412	412	412	486
Number of villages	106	109	68	65	64	68	176	32
Population	93,441	79,042	68,203	60,093	49,520	41,511	26,631	12,683

The district was part of the dominions of the **Raja of Sikkim** up to the beginning of the 18th century. In 1706 what is now the **Kalimpong** subdivision of the district was taken from the Raja

of Sikkim by the **Bhutanese**. The **Rajas** later became engaged in unsuccessful struggles with the **Gurkhas** who had seized power in **Nepal** and invaded Sikkim in 1780. During the next 30 years

they overran Sikkim as far east as the Tista and conquered and annexed the Terai. In the meantime war broke out between the East India Company and the Nepalese at the end of which in 1817 by the treaty of Titaliya the tract which the Nepalese had wrested from the Raja of Sikkim was ceded to the Company. The Company restored the whole of the country between the Mechi and the Tista to the Raja and guaranteed his sovereignty. Sikkim was thus maintained as a buffer State between Nepal and Bhutan.

Under the above treaty the Raja was bound to refer to the arbitration of the British Government all disputes between his subjects and those of neighbouring States. Ten years after it was signed disputes on the Sikkim-Nepal frontiers arose and were referred to the Governor General. Two Officers, Captain Lloyd and Mr. Grant, were deputed in 1828 to deal with the disputes and they penetrated into the hills as far north as Rinchinpong (in the Kulhait valley in Sikkim). Lloyd spent six days in February 1829 in "the old Goorkha Station of Darjeeling" and was attracted by its advantages as a site for a sanitarium. Darjeeling was then deserted although it had been occupied by a large village and the residence of one of the principal Kazis.

Mr. Grant reported accordingly to the Governor General Lord William Bentinck the numerous advantages promised by a Sanitarium at Darjeeling and also recommended its occupation for military purposes as the key of a pass into Nepal. The Governor General then deputed Captain Herbert, the Deputy Surveyor-General, to examine the country with Mr. Grant and in due course, the Court of Directors approved the project. General Lloyd (formerly Captain Lloyd) was directed to open negotiations with the Raja on the first convenient occasion and this occurred when General Lloyd was deputed to enquire into the causes of an incursion from Nepal of Lepchas who had taken refuge there from Sikkim. He succeeded in obtaining the execution of a deed of grant by the Raja of Sikkim on the 1st February 1835. The deed was worded as follows:

The Governor General, having expressed his desire for the possession of the hill of Darjeeling on account of its cool climate, for the purpose of enabling the servants of his Government, suffering from sickness, to avail themselves of its advantages, I, the Sikkimputtee Rajah, out of friendship for the said Governor General, hereby present Darjeeling to the East India Company, that is, all the land south of the Great Rangit river, east of the Balasun, Kahail and Little Rangit rivers and west of Rungno and Mahanadi rivers.

This was an unconditional cession of what was then an uninhabited mountain. But in 1841 the Government granted the Raja an allowance of Rs. 3,000 per annum as compensation and this was raised in 1846 to Rs. 6,000 per annum.

After the cession, General Lloyd and a Dr. Chapman were sent in 1836 to explore and investigate the climate and the capabilities of the place. They spent the winter of 1836 and part of 1837 doing this and when it was finally decided to develop the site as a Sanitarium, General Lloyd was appointed a Local Agent to deal with applications for land which began to pour in from residents of Calcutta. Progress was rapid: whereas in 1836 General Lloyd and Dr. Chapman found only a few huts erected by the Raja of Sikkim, by 1840, a road had been made from Pankhabari; there was a staging bungalow there and at Mahaldiram; a hotel had been started at Kurseong and another at Darjeeling; and at Darjeeling 30 private houses had been erected and nearly as many 'locations' or building sites had been taken up at Lebong.

The rest of the ceded area was however under forest and practically uninhabited. According to Captain Herbert, this was because about ten years previously 1,200 able-bodied Lepchas forming two-thirds of the population of Sikkim, had been forced by the oppression of the Raja to fly from Darjeeling and its neighbourhood and take refuge in Nepal. What little cultivation there had been was abandoned and the Raja prohibited his subjects from going to Darjeeling and helping in the establishment of new settlements.

In 1839 Dr. Campbell of the Indian Medical Service, British Resident in Nepal, was transferred to Darjeeling as Superintendent. In this capacity he was in charge not only of the civil, criminal and fiscal administration of the district but also of political relations with Sikkim. Dr. Campbell gave much encouragement to immigrant cultivators and population rose from about 100 in 1839 to about 10,000 in 1849. "Whatever has been done here", wrote W. B. Jackson, an Inspecting Officer in 1852, "has been done by Dr. Campbell alone. He found Darjeeling an inaccessible tract of forest, with a very scanty population; by his exertions an excellent sanitarium has been established for troops and others; a Bill Corps has been established for the maintenance of order and improvement of communications; no less than 70 European houses have been built, with a bazar, jail and buildings for the accommodation of the sick in the depot; a revenue of Rs. 50,000 has been raised and is collected punctually and without balance; a simple system of administration of justice has been introduced, well adapted to the character of the tribes with whom he had to deal; the system of forced labour formerly in use has been abolished and labour with all other valuables has been left to find its own price in an open market; roads have been made; experimental cultivation of tea and coffee has been introduced and various European fruits and grapes; and this has been effected at the same time that the various tribes of inhabitants have been conciliated and their habits and prejudices treated with a caution and forbearance which will render further progress in the same direction an easy task."

In the meantime relations with Sikkim deteriorated. The increasing importance of Darjeeling under free institutions was a source of loss and frustration to the Lamas and leading men of Sikkim, headed by the Dewan Namguay, who were sharers in a monopoly of all trade in Sikkim and lost their rights over those slaves who settled as free men and British subjects in the Darjeeling territory. Frequent kidnappings and demands for return of slaves took place and the climax was reached when in November 1849 Sir Joseph Hooker and Dr. Campbell were made prisoners, while travelling in Sikkim with the permission of the Raja and the British Government. Various demands were made as conditions of release but the Sikkimese eventually released both the prisoners unconditionally on the 24th December 1849. (Dr. Hooker's account of these events from his *Himalayan Journal* will be found in an appendix of this volume.) In February 1850 a small punitive force entered Sikkim and remained on the north bank of the Great Rangit river for a few weeks. But the serious punitive action taken was the withdrawal of the grants of Rs. 6,000 from the Raja and the annexation of the Terai and the portion of the Sikkim hills bounded by the Ramnam and the Great Rangit on the north, by the Tista on the east and by the Nepal frontier on the west. The area annexed was 640 square miles in extent.

Immediately after annexation of the Terai in 1850 the southern portion was placed under the Purnea district, but in consequence of the dislike of the inhabitants to this transfer it was cancelled and the whole area was attached to Darjeeling. At the time of annexation there were Bengali officers in the Terai called Chaudhuris who exercised civil and criminal powers.

The Terai and the hill territory annexed from Sikkim were managed by the Superintendent who from the 8th May 1850 was called the Deputy Commissioner. The change was welcomed by the inhabitants who now had to pay only small fixed sums into the treasury in Darjeeling instead of having to meet uncertain and fluctuating demands in kind and for personal service made by the Raja and Dewan.

The annexations brought about a significant change in the relations between Sikkim and the British. Previously the Darjeeling district had been an enclave in Sikkim territory and, to reach it the British had to pass through a country acknowledging the rule of a foreign, though dependent, Raja. After the annexation British territory in Darjeeling was continuous with the British districts of Purnea and Rangpur in the plains and the Sikkim Raja was cut off from access to the plains except through British territory.

For some years after the annexations, relations with Sikkim were not disturbed but raids on British territory later recommenced and British subjects were carried off and sold as slaves or

detained in Sikkim. The Raja was now an old man of nearly 80 and had retired to Chumbi in Tibet leaving the Government to Dewan Namguay who had arrested Dr. Campbell and Dr. Hooker in 1849. Six months of negotiation proved fruitless and it was decided to take possession of the portion of Sikkim north of the Ramnam and west of the Great Rangit until British subjects were released, offenders handed over and security obtained against a recurrence of similar offences.

With this object Dr. Campbell, with a small force of 160 rank and file, crossed the Ramnam in November 1860 and advanced as far as Rinchinpong. He was however attacked and forced to fall back on Darjeeling. Later Colonel Gawler with Sir Ashley Eden as Envoy and Special Commissioner moved with artillery and a force of 2,600 men and entered Tumlong, the capital of Sikkim, in March 1861. The Dewan fled and the Raja abdicated in favour of his son with whom, on the 28th March, a treaty was made which was of particular importance to Darjeeling because it finally put an end to frontier troubles with Sikkim and secured full freedom for commerce across the Sikkim border.

But frontier trouble elsewhere was not over. Along their long frontier with India, the Bhutanese were responsible for a series of incursions in which property was plundered, lives taken and many innocent persons carried off into captivity. In 1862 news came that the Bhutanese were preparing to make an attack on Darjeeling and troops were hurried up from Dinapore to restore confidence. This was followed in 1863 by the despatch of a special Mission to Bhutan under Sir Ashley Eden to settle differences and obtain the restoration of plundered property. The Mission failed as the British Envoy was compelled by threats to sign a document giving up all claims to the Bhutan Duars on the Assam frontier. He was treated with indignity and only with difficulty in April 1864 succeeded in leaving Punakha by night and returning to Darjeeling.

Negotiations continued fruitlessly and the Government of India decided to annex the Bengal Duars and such hill territory as might be necessary to prevent Bhutanese incursions into Darjeeling district or the plains south of Bhutan. Small expeditions were sent into Bhutan in the winter of 1864. These met with very little opposition and the operations terminated when, in November 1865, the treaty extorted from Sir Ashley Eden was replaced by a fresh one by which what is now the Kalimpong subdivision as well as the Bhutan Duars and passes leading into the Bhutan hills were ceded to the British in return for an annual subsidy. The Kalimpong area was first notified as a subdivision under the Deputy Commissioner of the Western Duars District but in 1866 it was transferred to the district of Darjeeling. This was the last addition to the district which then reached its present dimensions.

The year 1866 thus marks an epoch in the history of the district, peace was then established within and on its borders and development, which had been considerable in spite of pioneering difficulties and interruptions due to political disturbances, now proceeded with more certainty and momentum.

After Kalimpong had been brought under British Administration the district was divided into two subdivisions: the headquarters subdivision with an area of 960 square miles including all the hills on both sides of the Tista and the Terai subdivision with an area of 274 square miles which included the whole of the country at the foot of the hills. The headquarters of the Terai subdivision were at Hanskhawa near Phansidewa from 1864 to 1880 when they were transferred to Siliguri. Then the metre gauge railway of the North Bengal State Railway had been extended to Siliguri and Siliguri, at that time in the Jalpaiguri district, was transferred to Darjeeling district with a small surrounding area and made the headquarters of the Terai subdivision.

In the meantime Kurseong had begun to develop and in 1891 it was made the headquarters of a new subdivision which included both the Terai and the lower hills west of the Tista.

Later in 1907 Siliguri was made a subdivision, thus re-establishing the Terai subdivision which had in 1891 been absorbed into the Kurseong subdivision. Up to 1907 there had been a Deputy Magistrate at Siliguri working under the Subdivisional Officer, Kurseong, and managing the Terai Government Estate under the Deputy Commissioner.

Kalimpong in the meantime had been in the Sadar subdivision with a manager of the Khas Mahals working at Kalimpong under the Deputy Commissioner, police work being controlled by an Inspector. In 1916 the Kalimpong subdivision was created as a preliminary to working out development schemes in Kalimpong.

The district was included in the Rajshahi Division until October 1905 when, as a result of the Partition of Bengal, it was transferred to the Bhagalpur Division. With the re-arrangement of the provinces it was retransferred to the Rajshahi Division in March 1912.

The Partition of Bengal in August 1947 left the boundaries of the district in tact and in the share of West Bengal. The district was placed thereafter in the Presidency Division.

The district was formerly a non-regulation district, that is to say, Acts and Regulations did not come into force unless they were specially extended to the district. Darjeeling had no representative in the Legislative Council constituted under the Government of India Act, 1919.

It was excluded and declared a backward tract. The administration of the district was then vested in the Governor in Council and expenditure of the internal administration of the district was not subject to the vote of the Legislature. The effect of exclusion was that any Act passed by the legislature which extended to the whole of Bengal automatically applied to the Darjeeling district, unless the Governor in Council directed that the Act in question should not apply or that it should apply subject to such modifications as the Governor thought proper.

Under the Government of India Act, 1935, the district was made a partially excluded area under section 92 of the Government of India Act, 1935, no Act of the Provincial or the Central Legislature applying to it unless the Governor by public notification so directed and the Governor in giving such a direction with respect to any Act might direct that the Act would, in its application to this district, or to any specified part of it, have effect subject to such exceptions or modifications as he thought fit.

According to the Constitution of India the district no longer enjoys special privileges and all statutes except the Bengal Tenancy Act in certain of its particulars apply. The Deputy Commissioner of Darjeeling is now the same as a District Magistrate and has to be notified as such in the *Official Gazette* when a new Deputy Commissioner is appointed. The authority of the Deputy Commissioner is greater in Darjeeling than that of the District Officer in other West Bengal districts by reason of his powers of control over a very considerable Khas Mahal, over most of the bazars in the district, over the work of the District Board as Chairman and over the Darjeeling Town Administration as Chairman of the Municipality.

Administration in the district has peculiarities due to the special application of various enactments. The Bengal Tenancy Act is not in force and Act X of 1859 and Act VIII of 1879 regulate the rights and liabilities of the rural population. The Bengal Local Self-Government Act and the Bengal Municipal Act have special modifications adapting them to the local conditions. The Bengal Village Self-Government Act is in force only in the non-tea rural areas of the Siliguri subdivision; it is not in force anywhere in the hills. A number of special amendments to the Motor Vehicles Act has been found necessary to meet hill conditions. To regulate amenities in the small residential area of the abandoned Takdah Cantonment, one Union Committee has been established.

An account of the administrative history of the district would not be complete without reference to certain policies carried out for prevention of the exploitation of hillmen. After Kalimpong was annexed, Government would not lease any portion of it for tea cultivation except for very special reasons. Transfers of holdings in the Hill Khas

Mahals of the district from hillmen to plainsmen have not been permitted and except for special reasons, transfers from Bhutias and Lepchas to Nepalis have not been allowed in the Kalimpong Khas Mahal.

The District and Sessions Judge of Darjeeling is also District and Sessions Judge of Jalpaiguri, West Dinajpur and Malda with his headquarters at Jalpaiguri. The district used to be peculiar in civil judicial powers. The Subdivisional Officers of Kurseong, Kalimpong and Siliguri all had powers of a Munsif and Small Causes Court Judge up to Rs. 50. Appeals from these Munsifs and from the Munsif at Darjeeling lay to the Deputy Commissioner. The Deputy Commissioner, in addition to having appellate powers, used to be *ex-officio* Sub-Judge and also had the powers of a Small Cause Court Judge up to Rs. 500. He was a District Delegate under section 26(1) of the Indian Succession Act. Latterly these powers have been withdrawn in favour of Munsif and Sub-Judges under the High Court of Judicature. There is a Deputy Commissioner for the district and a Subdivisional Officer for each subdivision. The strength of the Executive Service recommended by the Divisional Commissioner for the General Administration is two officers of the West Bengal Civil Service for the Sadar subdivision, and one officer each for the Kurseong, Siliguri and Kalimpong subdivisions, two officers of the West Bengal Junior Civil Service for the Sadar subdivision, three officers from the same service for Siliguri subdivision, and one officer of the same service for the Kalimpong subdivision. There is one officer of the West Bengal Junior Civil Service in Kurseong. There are two Khas Mahal Officers, one for the Sadar subdivision and another for the Kalimpong subdivision, as there are extensive Khas Mahal lands in either of them. There is only one Circle Officer in the district for those portions of the Siliguri subdivision which are governed by the Village Self-Government Act. There is a Superintendent of Police for the district assisted by the Deputy Superintendent of Police at Headquarters and another at Siliguri. The Commissioner of the Presidency Division has his headquarters in Calcutta with a second headquarters in Jalpaiguri for looking after this district. The Deputy Inspector-General of Police, Northern Range, has his headquarters in Jalpaiguri.

PHYSICAL ASPECTS.

General description—The district of Darjeeling lies between 26°31' and 27°13' north latitude and between 87°59' and 88°53' east longitude and its total area is about 1,200 square miles. The principal town and administrative headquarters of the district is Darjeeling town at 27°03' north latitude and 88°16' east longitude.

In shape, the district is an irregular triangle. The northern boundary commences on the west at the peak of Phalut nearly 12,000 feet high, the

trijunction of the boundaries of Nepal, Sikkim and India. This boundary runs east from Phalut along a ridge descending to the Rammam river. From there the boundary follows the course of that river until it joins the Rangit and then follows the Rangit until it reaches the Tista. Proceeding east of that junction the boundary follows the Tista upstream until its junction with the Rangpo Chu thence it proceeds first up the Rangpo Chu and then up the Rishi Chu to a spur of the Rishi La which is the trijunction of the boundaries of Sikkim, Bhutan, and India. From the Rishi La (10,300 ft.), the boundary with Bhutan follows down the Ni Chu in a south-easterly direction until it meets the Jaldhaka river; it follows that river southward until the Jalpaiguri district is reached in the Khumani forest.

Boundaries—On the west the district is bounded by Nepal. From Phalut the western boundary follows the southward ridge until it joins the Mechi river which continues as the boundary right down into the plains and up to the south-west corner of the district. On the south, the district is bounded by the Jalpaiguri district of Bengal from the Khumani forest on the east to the village of Phansidewa on the Mahanadi river and westward of Phansidewa by the Purnea district of Bihar.

Natural divisions The area of the district is not marked by any natural features as a region complete in itself. It consists of a portion of the out-lying hills of the lower Himalayas and a stretch of territory lying along the base of the hills known as the Terai. The range of altitude is considerable. The Terai is only 300 ft. above sea-level but there are parts of the district in the hills which are nearly 12,000 feet high. Geographically, the Terai belongs to the plains of India but geologically it is a sort of neutral country; the greater part of it being composed neither of the alluvium of the plains nor of the rocks of the hills, but of alternating beds of sand, gravel and boulders brought down from the mountains. It is traversed by numerous rivers and streams flowing out of the hills; it is unhealthy and in places marshy.

North of the Terai, the Himalayas stand out in a succession of bold spurs, the appearance of which has been compared with that of the weather-beaten front of a mountainous coast. The change from hills to plains is very abrupt and can be appreciated more vividly by observation on a clear day from above. From Kurseong or other view-point, the observer looking southwards will see the hills descending steeply below him and suddenly ending and from their foot the plains stretching away without any undulation to the southern horizon.

The hill portion of the district is a confused labyrinth of ridges and narrow valleys. There are no open valleys, no plains, no lakes and no precipices of consequence. Most of the ridges are forest clad though on lower slopes the forests have

often been cleared for tea and other cultivation. The main ridges wind and zigzag in all directions, giving off a number of long spurs on either flank. For the most part the ridges stretch from north to south while the courses of the principal rivers are in the same direction; but many of the spurs and of the torrents flowing between them run east and west and even in some areas from south to north. The valleys have a great range of altitude, climate and aspect and some are thousands of feet deep. Hills and valleys are covered in many places with a dense mass of forest, festooned with moss and lichens and dripping with moisture.

In spite of the confused nature of the mountain masses, certain clearly defined features can be observed. The highest ground is in the north-west where the Singalila ridge enters the district at Phalut. The ridge is nearly 12,000 feet high at Phalut and further south at Sandakphu; from there it descends to Manibhanjan (6,000 feet) as the boundary between Nepal and the district. The ridge continues southward to the level of the plains first as the boundary and then as the top of slopes on the left bank of the Mechi river.

From Manibhanjan eastward, there is a ridge which undulates up to the pass at Ghum and then rises more steeply to the heights of Senchal and Tiger Hill (8,600 feet). It then turns southward, gradually descending to Mahaldiram and Dow Hill above Kurseong and then still further southwards down to the plains. From this main ridge spurs branch down on either side, the more prominent on the east side being the Takdah-Peshok ridge descending to the junction of the Rangit with the Tista and the Sittong spur further south. Darjeeling town is on a spur running north from the Manibhanjan-Senchal ridge which divides below the town into the Tukvar and the Lebong spurs before they descend to the Rangit river.

East of the Tista, the highest ground is at the Rishi La (10,300 feet), the trijunction of Bhutan, Sikkim and India. From here one of the more prominent ridges runs south-east and cuts off the Jaldhaka valley from the rest of the district. Another ridge descends to Labha just under 7,000 feet above the sea. From here an important spur leads south-westward down to the plains and another north-west to Rissisum where it joins a ridge running north-east to south-west. The Pedong and the south-western spur passes through Kalimpong and descends abruptly into the Tista valley.

River system—The rivers of the district drain ultimately to the south, though the west to east ridge across it causes a series of Tista tributaries rising on its northern face to flow northwards and others flow east or west before joining the main river.

Dominating all the other rivers in the district is the Tista which rises in a glacier in north Sikkim 21,000 feet above sea-level and drains the

whole of Sikkim. It forms the boundary of the district from the point where it is joined by the Rangpo down to its junction with the Great Rangit flowing in from the west. From that point it lies entirely in the Darjeeling district until it leaves it at Sivok, ultimately entering the Brahmaputra in Rangpur district (East Pakistan). In Darjeeling district, its principal tributaries are the Rangpo and the Rilli on its left bank and the Great Rangit, the Riyang and the Sivok on the right bank. The river is bridged by a suspension bridge near Melli. In the gorge, where both banks are in the district, there are three bridges two of reinforced concrete carrying heavy road traffic and one suspension bridge carrying only animals and pedestrians.

The Tista is a broad mountain torrent with numerous shallows and rapids. Its current is swift and dangerous, running in places at 14 miles an hour and it is liable to sudden rises in level due to its flow being constricted in a gorge.

In the dry season its waters are sea green. It begins its annual rise when the north Sikkim snows melt. The advent of the rains brings a bigger rise and the water then acquires a milky hue from detritus in suspension. Below its junction with the Rangit the river traverses the district in a deep gorge where it is not 100 yards broad; but as soon as it debouches into the plains it widens and becomes two or three hundred yards from bank to bank. It is not navigable by boats in the district, although for bridge building boats have been used and for other purposes rafts are operated on occasions.

The scenery along the banks of the Tista is extremely beautiful. The gorge is narrow and winding and the steep sides are clothed in dense forest broken at intervals by side valleys. Up the gorge and the side valleys can occasionally be obtained glimpses of high mountain masses; near at hand the vegetation and insect life is gorgeous in its tropical splendour. In June 1950 very heavy rainfall in the course of 72 hours burst one of the catchment lakes of the Tista in Sikkim as a result of which the river has become more destructive than ever before.

Of the tributaries of the Tista, the Great Rangit is the most important. It enters the district from Sikkim at the point on the northern boundary where it receives the Rammam on its right bank. Below that junction, it flows eastwards, receiving the Little Rangit and the Rangnu as tributaries from the Darjeeling side. The Rammam rises under Phalut mountain, the Little Rangit under Tanglu and the Rangnu tears down from Senchal in a valley several thousand feet deep; though its roar is heard and its valley is visible from end to end, the stream itself cannot be seen from above, so deep has its channel been cut.

The Great Rangit is a graceful mountain torrent with a stony or sandy bed. Its banks are usually

clothed in forests but here and there can be found patches of cultivation. Its meeting with the Tista provides one of the most picturesque scenes along its course. Here, there is a great difference in the colour of the waters of the two rivers, that of the Tista being cloudy while the water of the Rangit is dark green and very clear. There is no less marked a difference in the temperature of the two rivers, the water of the Rangit being appreciably warmer than that of the Tista. The colour and the coldness of the latter are no doubt due to the number of glaciers drained by it; while the Rangit is chiefly supplied by the rainfall of the outer ranges of the Sanchal and Singalila hills and hence its water is warmer and clearer, except in the height of the rains.

East of the Tista, are rivers debouching from the foothills which, like it, flow into the Brahmaputra. All are torrents subject to violent changes in volume, for the hills here intercept very heavy rainfall and the catchment areas of the rivers are small. The most important of these eastern rivers is the Jaldhaka whose catchment area is cut off from the rest of the district and reaches up to Gnatong in Sikkim. From points on the Tibetan trade route near Gnatong 12,000 feet above sea-level one can look down and see, in a deep valley, the course of this river like a silver shaft pointing southward in a straight line. The banks are steep and clothed in jungle right down to the plains.

The Jaldhaka carries the largest volume of water of all this group of eastern foothill rivers. Those nearest the Tista, the Lish, the Gish and the Chel emerge from the hills carrying great volumes of stones, mud and sand torn from their catchment areas by erosion and landslides. The Lish and the Gish fill up their beds higher and higher with detritus and engineers find it difficult to make additions to bridges fast enough to keep pace with the rise in the level of the river beds.

The rivers to the west of the Tista, the Mahanadi, the Balasan and the Mechi all flow into the Ganges. The Mahanadi has its source near the mountain of Mahaldiram to the east of Kurseong. Its catchment area is small but receives a high rainfall in the monsoon. After leaving the hills, the Mahanadi flows south as far as Siliguri, where it changes its direction more to the south-west and forms the boundary between the Terai and the Jalpaiguri district as far as Phansidewa.

The Balasan rises near Lepchajagat on the Ghum-Simana ridge and its valley west of Kurseong is larger than that of the Mahanadi although it does not receive so heavy a rainfall. After entering the Terai it divides into two streams. One, called the New Balasan, joins the Mahanadi just below Siliguri; the other branch, the Old Balasan, continues southward and passes out of the district to join the Mahanadi lower down in the Purnea district. The new channel is said to have been caused 100 years ago by Meches damming up

the stream for fishing. However that may be, it is a fact that, at the present time, the volume of water flowing in the Old Balasan is considerable and fluctuations in its volume occur which are dangerous to roads and bridges crossing it.

On the extreme west is the Mechi river, part of the district boundary with Nepal, whose chief tributary comes from beyond the frontier. Landslips in Nepal bring down much detritus into the Mechi, the bed of which near the mouth of its gorge is, in the dry season, characteristic of the rivers of the hill face—a stretch of loose and water-worn stones intersected with water channels. The spread of stones surges down southward and where the river emerges from the hills, attacks fields and forests, being at one point pushed further into the attack by another stone stream of delta formation, the mouth of a second tributary from the Nepal side of the main river.

Geology—The geological formations of the Darjeeling district consist of unaltered sedimentary rocks, confined to the hills on the south, and different grades of metamorphic rocks over the rest of the area. The outcrops of the various rocks form a series of bands more or less parallel to the general line of the Himalaya and dipping one beneath the other into the hills. A characteristic feature of the southern area is that the older formations rest on the younger, showing a complete reversal of the original order of superposition.

The great range was elevated during the Tertiary period, on the site of an ancient sea that had accumulated sediments of different geological ages. The mountains are made of folded rocks piled one over another by a series of north-south horizontal compression movements and tangential thrusts which also folded the strata on the sea-floor and caused their upheaval by stages. At many places the formation have been intruded by granites. The mountains have incorporated some of the rocks of Peninsular India, which seem to have extended northwards as far as the Himalayan sea. Frequently the strata within the range are inverted due to the overturning of the folds and their dislocation. Features of such inversion, bringing the older beds above the younger, characterise the whole length of the outer Himalaya.

The present relief of high peaks and deep valleys has been carved by wind, water and snow, three principal agents of denudation. The products of disintegration of the mountains have been swept over the submontane tract as the rivers debouch into the plains. The Terai and the plains at the foot of the Himalaya were given their present form after the final upheaval of the range and consist of almost horizontal layers of unconsolidated sand, silt, pebbles and gravel.

The foothills, north of the Terai, are made of similar but well-cemented and more compact alluvial detritus consisting of soft, grey, massive

sandstones, mudstones, shales, mottled clays, conglomerates and subordinate bands of earthy limestone and lignite. The rocks are of Tertiary age and have been included in the Nahan stage of the Siwalik system of the outer Himalaya. The material was laid down along the foot of the rising Himalaya, by an old river system draining the young mountains, and was incorporated in the foothills during the later stages of uplift.

Resting over the Siwalik beds is a group of still older rocks consisting of coarse, hard sandstone, sometimes silicified into quartzites, of carbonaceous and splintery slates, of shales and of impersistent seams of powdered coal. The beds have been invaded in places by minor intrusions of lamprophyre. The shales have yielded plant fossils similar to those found in the Damuda stage of the great coal-bearing Lower Gondwana system of Peninsular India, ranging from Permo-Carboniferous to Permian in age.

North of the Gondwana outcrops, the hills are occupied by a group of low grade metamorphosed sediments represented by quartzites, slates, phyllites and foliated rocks composed of flaky minerals such as graphite, chlorite and sericite. Occasional minor bands of altered basic igneous rocks also occur. The group overlies the Gondwanas and is known as the Daling series.

The Daling series rests under a variety of foliated and banded metamorphic rocks, partly sedimentary and partly igneous in origin. These rocks are known under the general name of Darjeeling gneiss. They are composed of mica-schists and gneisses; some of the gneisses have been formed by injections of granitic fluid along the micaceous layers of the schists. Where soaking has been thorough, the gneisses approach granites in composition and are made of biotite muscovite, quartz and feldspars. The sedimentary varieties of the Darjeeling gneiss contain such minerals as garnet, sillimanite, kainite and staurolite, the presence of which indicates that the rocks were subjected to higher temperature and pressure than the Daling rocks. The Darjeeling gneiss also carries subordinate bands of quartzite.

The formations of the southern area, with minor exceptions, are inclined at high angles towards the north and north-west. The Tertiaries fringe the older rocks on the south, almost continuously from close to the Mechi river eastward to the Jalbhaka. The Gondwanas constitute a narrow band between the Dalings and the Tertiaries running from Pankhabari to the Jalbhaka. A thrust relation is clear between the Gondwanas and the Siwaliks; a thrust plane is also found between the Gondwanas and the Dalings. The Buxas, overlying the Gondwanas, occur only at the extreme eastern end of the District. The Dalings occupy the entire length of the District following more or less the same trend and inclination as the younger rocks.

The Darjeeling gneiss occupies the greater part of the district; it occupies the higher reaches of the hills. On the journey between the plains and Darjeeling, the Tertiary beds crop out between Sukna and Chunabhati, the coal-bearing Gondwanas below Tindharia, the Daling rocks between Tindharia and north of Gayabari, and the Darjeeling gneiss over the rest of the distance.

The Daling series appears in the Tista valley between Kalijhora and Rangpo, and extends into Sikkim. It is present in the Rangit valley below Darjeeling and the Ghum Range where it has southerly dips. Everywhere in both the valleys it occurs below the Darjeeling gneiss. From the disposition of low grade metamorphic rocks underlying highly metamorphosed ones, some geologists consider the Dalings and the Darjeeling gneiss are two distinct series and maintain that the latter has been pushed over the former and separated from them by a thrust plane. Others, however, regard the Darjeeling gneiss as the granite-injected and highly metamorphosed upper part of a great sedimentary succession, of which the Dalings represent the lower part. No final decision has yet been reached in the matter and the age and relations of the Darjeeling gneiss are uncertain.

Minerals, Mines and Quarries—The minerals of the district include coal, graphite, iron, copper ores, lime, etc., but none except coal has so far been exploited with profit. The Gondwana beds contain coal which has a variable ash content. The beds are contorted, faulted and inclined at high angles. The coal is badly crushed and has been rendered powdery, friable and flaky; it does not seem usable for commercial purposes except when coked or converted into briquettes. The high inclination of the coal seams, their impersistence due to faulting and their inaccessibility are the obstacles to their economical development. Mining operations are being carried out at the Dalingkot coalfield below Nimbong in the Kalimpong Sub-division.

Graphite of an inferior quality occurs in the semigraphitic schists of the Rakti river. As far as is known it is of no economic value.

Iron-ore, varying from a strong ferruginous clay to an impure brown hematite, is found at Lohargarh to the south-west of the district below Pankhabari and, according to old reports, was formerly worked. High grade magnetite and micaceous hematite, free from sulphur and phosphorous, form a band about 20 feet thick at Samalbong about a mile east-south-east of Sikbar to the east of the Tista. The ore is said to have produced iron of the best quality in the past.

Copper-ores, chiefly chalcopyrite, occur in the rocks of the Daling series near Ranihat, on the western side of Mahanadi, near the mouth of the Balfupani: at Peshok: at a place 2 miles north-east of Kalimpong; on the left bank of the Tista

river, east of Mangpu : in a ravine near Sampther : and in the neighbourhood of the Chel river. No attempt has yet been made to exploit the deposits by modern methods. Concessions were taken out in the past but working was unsuccessful. The number of mines and old workings deserted by the local people shows that even they did not find copper smelting in the Darjeeling hills lucrative.

An occurrence of arsenical Pyrites has been reported from the western side of Sampther hill, at about a mile and a half north-east of Yongti mine. The ore occurs in quartzschist as a seam one foot in thickness.

There are three possible sources of lime in the district, viz., the dolomite of the Buxa series, the limestone bands in the Tertiary rocks and the calcareous tufa deposited by water at numerous localities, chiefly at the junction of the Gondwana and the Tertiary rocks. The tufa is fairly pure and contains over 90 per cent. of carbonate of lime.

The district does not possess high class building or ornamental stone but practically all formations yield stone that can be used for building purposes. Stone is procurable everywhere in the hills from rocks near at hand such as the Daling beds, which yield coarse slate and quartzite, or the harder Tertiary and Gondwana sandstones near the foot of the hills to the common Darjeeling gneiss, which can easily be split and dressed into conveniently sized blocks for use in buildings, revetments and protection walls. The Works and Buildings and the Forest Departments of the West Bengal Government maintain several quarries for road metal for which quartzite and gneiss are commonly used.

The Darjeeling gneiss decomposes superficially into a light brown plastic clay. The Dalings too decompose into a similar clay and both the varieties are used for making bricks. Some varieties of Dalings decompose into a white clay which is suitable for pottery and white painting.

Earthquakes—Within living memory, the district has not fallen within the epicentral tract of a major earthquake affecting north-eastern India. But minor earthquake shocks, smart as well as mild, have been recorded from time to time since 1842. A sharp shock, felt on the 27th February 1849, caused many well-built walls to crack. Several shocks were felt between March and October in the year 1863. During the Cachar Earthquake of the 10th January 1869, smart shocks were recorded at Darjeeling, Kurseong, Pankhabari and Siliguri. During the same year minor tremors were felt at Darjeeling between the months of March and August. Cracks appeared in several buildings at Darjeeling and Kalimpong during the Dhubri Earthquake of the 3rd July 1930.

The district was included within the higher isoseismals of the Assam Earthquake of the 12th June 1897 and the Bihar-Nepal Earthquake of the 15th January 1934. It was severely shaken on

both occasions, the worst affected parts being Darjeeling town and its neighbouring spurs and the railway station at Tindharia. At Darjeeling a number of badly constructed houses totally collapsed. Landslips took place near Tindharia station soon after the earthquake of 1897 and a ground fissure, over 300 yards long, appeared below the station yard in 1934.

The recent Assam earthquake of the 15th August 1950, did not cause much material damage in the district.

Erosion and Landslips—The district is exposed to constant danger from landslides, most of which take place during or soon after the monsoon. Scars left by landslides are common features of the landscape in every part of the district. Gravity, in causing slips, is aided by the steepness of slopes and soaking of the mantle rock, essential conditions of instability being lack of support in front and lubrication behind. The parts of the hills usually affected either are composed of soft rocks such as schists, shales and clays or support thick mantles of soil and weathered rock debris on steep slopes.

Several of the types into which Swiss geologists classify landslides can be recognised in the Darjeeling-Himalaya. The simplest are the Rock Falls, or Felssturze of the Swiss: these are falls of boulders, large or small, from steep slopes. Boulders on hill-sides are usually isolated from the bedrock by a zone of decomposed material behind and beneath them. Traffic is often held up on the Cart Road to Darjeeling by rock falls of this type, which are not uncommon during the rains.

Another type, the sliding of rock masses, termed Felschlipfe in the Alps, is quite frequent in the Tista valley between Sivok and Kalijhora, where the hills consist of interbedded sandstones and shales inclined at high angles in the same direction as the hillslopes. The scouring of underlying bands of soft shales by rainwater causes the overlying sandstones to slip and slide down the hillsides. Sliding also occurs among the harder gneisses and quartzites when they are fractured and faulted or traversed by highly inclined joint and cleavage planes.

A third type, Soil Slips or Schuttrutschungen, is caused by slow downward movements of soil or unconsolidated material along unprotected hillslopes. Such movements are familiar on the Cart Road, particularly between Mahanadi and Rangtong, where portions of the road may sink from a few inches to several feet. The subsidence usually takes place where a steep embankment has been constructed on decomposed or soft rocks such as shales, clays or micaceous schists and is left without sufficient protection. Elsewhere in the hills, surface waters, percolating through shattered rocks in a crushed zone, sometimes issue as springs at lower levels and carry large quantities of comminuted rock particles in suspension. This causes

subsidence at the higher levels and slips at lower levels: both are the result of the undermining action of spring water at the foot of the slopes. A settlement of this nature was recorded in the faulted area between the two branches of the Kaghjhora in Darjeeling, where subsidence at the higher levels produced serious cracks in the surface soil.

The slow downward creeping movements of soil sometimes give place to sudden and violent landslips called Schuttsturze by the Swiss geologists. Such slips may occur on slopes covered with thick soil and weathered rock and may affect hillsides of considerable extent. Such landslips are explained in the following way. The soil-cap is the direct product of the atmospheric decomposition of rocks. There is a transition from the superficial layer of soil formed by the weathering of the rocks near the surface through a zone of decomposed rocks, known as the sub-soil, to the bed-rock. The soil-cap is in process of continual growth through chemical action of percolating waters on the bed-rock. As the rate of erosion of soil by rain-water is lower on hill slopes covered with vegetation than on bare slopes, thick mantles of soil and other products of rock decay accumulate on wooded slopes. This material can remain stable so long as its angle of safety is greater than the inclination of the slope on which it rests. The removal of a soil-cap from the foot of a hill by streams increases the average slope of the hillside and disturbs the angle of repose of the soil-cap. Consequently the soil-cap on the upper part of a hillside, when subjected to the undermining and erosive action of a stream, is liable to a slow process of creep (Schuttrutschen) with the regular succession of wet and dry seasons. During each monsoon, as a result of the expansion which follows saturation, the soil-cap slowly moves downwards in the direction of least resistance. In the succeeding dry season, the soil contracts on drying and the downward movement is checked. Movements of the soil down the slope continue in this way year after year until conditions of stability are exceeded, when landslips occur to restore equilibrium. The magnitude of a landslide depends on the thickness of the soil-cap, the amount of saturation of the soil, the steepness of the hillside, the nature of the underlying rocks and the erosive power of the streams and waterfalls in the area.

Practically all the landslips in the district are caused by a combination of some or all of the above. The disastrous landslips of September 1899 which occurred on the eastern side of Darjeeling town were of the type known as Schuttsturze. These landslips were confined to the soil-cap covering the gneisses which form the Darjeeling ridge and their immediate cause was traced to the excessive rainfall which, following an unusually heavy monsoon, deluged the town for three days commencing on the 23rd September. The hillslopes already had a thick mantle of soil in a state of unstable equilibrium and heavy rains precipitated the slips. Damage to property was considerable while the loss of life amounted to 72; 45 deaths occurring on the eastern side of the ridge.

The landslips in the Happy Valley, west of the Cart Road at Darjeeling, are due to head erosion of the Katchary *jhora* and its tributaries. In this area the cliffs are of highly fractured and fissured gneissic rocks, which have been decomposed to considerable depths below the surface by percolating rain-water. The ground behind the cliffs is highly decomposed and, during the rains becomes saturated, whilst the water in the *jhora* below undermines the cliffs. The rockface becomes gradually detached from the ground behind and small or large sections of rock slide into the *jhora*.

In the reserved forests in the Kalimpong subdivision, landslips are caused by disintegration of the different rocks as a result of weathering and by the continual steepening, by river erosion, of the hillslopes supporting the weathered material. The increased angle of slope imparts instability to the weathered material which, having no outward support, slips into the valley below.

A large number of disastrous landslips occurred on the 11th—14th June 1950, during a period of continuous heavy rains. Most of these slips were of the type known as Schuttsturze. Some of the slips were of composite nature, involving primarily the soil or rocky talus, and also the underlying rock to some extent. Major slips occurred in and around Darjeeling town, at several places on the Cart Road near Sonada, in the Simana Basti area and in the Tista valley, north of Kalijhora.

Landslips in this district cannot entirely be prevented but they can be checked by proper protective measures. Turfing and afforestation of bare slopes, well-directed and efficient drainage, reduction of the steepness of hillslopes by terracing, outward protection of the soil-cap by means of revetments and buttresses, protection of the harder rock outcrops, systematic quarrying in hillsides and control of the erosive action of streams and waterfalls are some of the measures which give useful protection.

Local damage by erosion is mainly noticed when roads or railways are affected and the engineers responsible for communications have much of their time taken up in dealing with breaks arising from slips. They have become accustomed to coping, cheaply and swiftly, with damage often quite extensive and apparently alarming.

More serious effects of erosion are to be noticed in the behaviour of certain of the rivers debouching from the hills. The Mechi river bed on the west boundary of the district has been filled and its course deflected by a huge volume of detritus originating in a great landslide in Nepal. The result has been loss of cultivated land on the Darjeeling side of the river and great damage to the Mechi reserved forest through which the river is being deflected.

The Lish and Chel rivers on the eastern side of the district have been bringing down much

debris and thereby have damaged the road and bridging crossing the rivers at the foot of the hills. This is directly due to heavy erosion in the hills.

The Balasan river, emerging from the hills below Kurseong, divides into two branches. This bifurcation entails a continual danger that the river will change its course and damage property and roads. While it is not possible to say that this situation is due to any erosion, it may be true that, if the head waters had been more heavily afforested, the danger would not be so great.

Little can be done to remedy the more extensive effects of erosion after they have occurred. One or two small areas have been made over to the Forest Department for remedial measures by protection and afforestation. In 1940, an area of 188 acres was handed over at Dalapchan near Kalimpong, where damage to a Government road had been recurring and was costing large sums in repairs. In 1942, small areas totalling 173 acres were similarly handed over in the Kalimpong Development Area. Work has been taken in hand and it has been found necessary, before commencing afforestation, to construct revetment walls and contour drains.

Shri J. N. Sengupta, Silviculturist, with the Department of Forest, West Bengal, has kindly helped me in making the following notes on erosion and landslides in Darjeeling district:

The East India Company took possession of part of the district by the treaty of Titaliya in 1817, and of the hill of Darjeeling (the nucleus of the district) in February, 1835. At that time it was almost entirely under forest and practically uninhabited. By 1840, there were only a few huts with a population of little over 100, a road from Pankhabari (the old Military road), a staging bungalow, a couple of hotels and some 30 private houses erected at Darjeeling with some building sites at Lebong. The rest of the ceded area was under forest and practically uninhabited—the Lepchas that had formed the original population having left and taken refuge in Nepal. Dr. Campbell, Superintendent of the Darjeeling district (since 1839), encouraged immigrant cultivators and settlement of houses, construction of roads, cultivation of tea, coffee and various fruits and grapes, etc. By the year 1850, the number of inhabitants in the hill tract of 138 square miles rose up to 10,000. The Terai was annexed in 1850 and the Kalimpong subdivision as well as the Bhutan Duars and passes leading into the Bhutan hills were ceded to the British in 1865.

The real development of the district started in 1866, when large areas of forest land were brought under cultivation by the more efficient methods of terracing, ploughing and irrigating lands in replacement of the primitive agricultural method of jhuming (shifting cultivation), and by the introduction of new crops like tea, cinchona, potatoes, cardamoms and oranges. The rapid extension of

agriculture in the early days of development resulted in the clearance of large areas of forests at favourable altitudes. This rendered reservation of the remaining forests necessary for the conservation of timber and water-supply and for protection against erosion. Improvements of communications followed progressively in the shape of metalled and unmetalled roads, ropeways, etc., and the opening of the D. H. Railway in 1881 brought an important addition to the system of communications.

While there were 74 tea estates with 14,000 acres under tea plantation in 1872, there were 177 tea estates with 45,000 acres under tea in 1891. According to the census figures the total number of persons in the district was about 95,000 in 1872, about 249,000 in 1901, about 283,000 in 1921, and about 376,000 in 1941, showing the progressive increase in population with consequent land-hunger. The district has an area of approximately 1,200 square miles, and the density of population is 371 persons per square miles—the Sadar subdivision having a higher density (470) of population than the average of the district, while the Kalimpong subdivision has the least density (229). Of the areas worked by the small cultivator, by far the largest part is Government khasmahal land, —the other plantations being in the reserved forests and the Cinchona plantations of Government and in the tea gardens. Out of 1,200 square miles of the district, approximately 106 Sq. miles are under tea-crop (while the total area leased to tea gardens is 249 square miles), 437 Sq. miles (less than 37 per cent.) are under reserved forests, 34 Sq. miles under the Cinchona Directorate (of which only 6.8 square miles were under Cinchona in 1949), and 439 Sq. miles under cropped cultivation, leaving a balance of 184 square miles of waste lands including unreserved forests. There has been an enormous extension of cultivation in recent years, from 320 square miles in 1944-5 to 439 square miles in 1951-2.

When the district was first taken over by the British administration, the hill portion was almost entirely under forest. The only method of cultivation was jhuming or burning down the forests, in the interior of the hills by the Bhutias and the Lepchas, and on the foothills by the Meches and other aboriginal tribes. Methods of cultivation in the hills vary with the crops to be grown. Land which is not too steep is ploughed, otherwise hoes (*kodalis*) are used. While terracing (with an inward slope) is a distinctive and important feature of Himalayan cultivation, it is not systematically followed as terraces have to be cut with great labour in the hill sides.

The cattle population of the district, including goats, sheep, and the domestic animals, pigs, horses, donkey, etc., according to a census held in 1951, was 437,122. Controlled grazing is allowed in certain reserved forests besides in the extensive village grazing grounds dotted over many parts of the district.

Most of the forest areas of the district are administered as "reserved forests" by the Forest Department of Government. Appreciable areas of forest-clad lands are included in many tea leases, of which the produce is utilised by lease-holders. Certain forest areas are under the Government Khas Mahal administration, the area of which has gradually been diminishing for want of any bold policy of conservation or of systematic management. The forests of the Darjeeling hills have been used mainly to meet the local heavy demands of firewood, timber, for box-planking by tea gardens, firewood and charcoal of the town population and the cantonments, besides some quantities of building timber for constructional purposes. Fodder is in great demand throughout the hill areas. While professional graziers are allowed to pasture their cattle on the Singalila and Tonglu ranges, stall-feeding in *bathans* is the standard practice elsewhere. What with greater influx of people and shortage of coal-supply, the demand for firewood and charcoal increased by more than 400 per cent. above the normal soon after the commencement of the last War.

Besides supplying local needs for various kinds of forest produce, the forests in the Darjeeling hills have a very great indirect effect on the people. No year passes without landslips occurring to a greater or smaller extent in these hills. The slips would have been far more numerous and serious if the hills were completely laid bare of trees. For the trees in the forest not only cover the soil and hold the force of torrential rain, but their roots bind the soil also and keep it porous thus allowing the pourings from the crown slowly to precolate and feed the springs continuously. Where there are no trees, rain water strikes the ground directly and quickly rushes down the slope.

The above historical background of the progressive development of the district gives an idea of the slow and steady action of biological factors—the direct and indirect influence of the larger animals, particularly man and his domestic animals—on the physical features of this region. These factors have, to some extent, been malevolent to the forest, through injurious effects of fire, grazing, removal of grass, green-fodder, lopping and felling of trees for timber and firewood, besides clearance of forests for habitation or/and cultivation. The dangers of soil erosion are becoming more and more evident in most of the Khas Mahal areas that have been given over to cultivation. Where the forest has been cleared away in the course of the last 80 years, the protective covering of the deep soil, which was the legacy of the primeval forest, has now all been washed away, sheet erosion is rapidly taking place and, in many places, gullies and landslides have started so that the evils of erosion, at first insidious, are now forcing themselves upon men's attention.

The first disastrous landslips in Darjeeling for which record is available occurred on the 23rd/24th September 1899, on the eastern side of Darjeeling town. Their immediate cause was traced

to the excessive rainfall which, following an unusually heavy monsoon, deluged the town for three days commencing on the 23rd September. The hill slopes already had a thick mantle of soil in a state of unstable equilibrium and heavy rains precipitated the slips. Damage to property was considerable while the loss of life amounted to 72. Professor E. P. Stebbing in a letter to the *Indian Forester* from Edinburgh, dated the 23rd February, 1951, gave the following graphic description of these slips that had occurred half a century ago:

Darjeeling and the Tista river, what memories they evoke! The article in the December 1950 number of the *Indian Forester* entitled "The Mutilated Queen in the Sylvan Festival" by J. N. Sen Gupta might almost have been written in 1900—fifty years ago—for I wrote something very like it myself in 1900, but not for the *Indian Forester*.

During the Pujas of 1899 near the end of monsoon Darjeeling had 30 inches of rain in 30 hours. I was Officer-in-charge of the Forest Division that hot weather and rains. It was a Saturday afternoon and there was a gymkhana down at Lebong. As we started on the upward climb on our ponies the rain which had held off all the morning started again and fell without intermission until about midnight on the Sunday. The great slips. All the hillside facing the hill across the valley down which ran the road to the Tista valley was carried away with the houses on it. Sunday being the weekly bazar day in Darjeeling the place was packed and it was due to this that the mortality was so heavy. We, Station Officials headed by the Deputy Commissioner spent 5 days on that hillside and other places in the station searching for bodies. Darjeeling for a strenuous ten days was entirely isolated both portions of the road and railway having vanished.

But from J. N. Sen Gupta's interesting story there would appear to have been more trees, even more forest between Darjeeling and Kalimpong and on the Tista than at present. As he says the reverse should certainly be the case. You will never hold up these Darjeeling Hills without trees. And to grow and maintain these trees as a perpetual forest will require all the highest forestry knowledge that the Department can provide. The geological formation proves that, quite apart from the very moist climate of that lovely region.

Since then some effective measures were taken particularly for the town areas to protect their hill slopes on the lines suggested by an expert committee appointed by the Government of Bengal.

The next slips of serious magnitude were those in the Happy Valley, which were due to head erosion of the katchary *jhora* and its tributaries.

The most recent disastrous landslips occurred on the 11th and the 12th June, 1950, when the hill slopes in and around Darjeeling were very badly affected causing death and heavy damages to property (roads, houses and public works) in the town, neighbouring villages and gardens. The slips occurred during a period of heavy rains between the 10th and the 14th June, 1950 and were fairly numerous and widespread. As usual, these slips are also believed to have been due to the saturation of unstable hill slopes composed of soil and rock debris (resulting from the effect of incessant

rains*) which already had exceeded the safe angle of repose and had been rendered unstable.

The numerous slips of 1950 were not confined particularly to treeless or non-forested areas, but occurred along the marginal belts of several *jhoras* within the forest areas as well. The natural drainage or flow of water through these *jhoras* had been impeded for one reason or another, and any sudden accumulation of held-up water forced its exit through new focal lines (or joints) of least resistance, with the result that relatively loose or superficial soil-cap overlying the rocks slid down *en masse*. While the Kalimpong subdivision was not very badly affected except in the Khas Mahal area of Bhalukop Block, the Sadar subdivision of Darjeeling was the worst sufferer, with huge slips at not less than thirty focal points within the town area itself, besides many others in the outskirts.

Mention has already been made, in a general way, about the relatively important causes—remote as well as immediate—of landslips in these hills. While erosion may occur either in the form of sheet or gully erosion, landslides (which are a special form of erosion) are mass movements of soil sliding as a unit rather than the movement of soil as individual particles. When masses of soil on slopes become filled with water or water-logged, the entire saturated body of soil is likely to slip down (in the form of landslides) to a lower level. Landslides are particularly liable to occur when some stratum, either of impermeable soil or rock, lies parallel to the slope, and prevents deeper entrance of water into the ground.

The volume of the moving mass varies from a few hundred cubic feet to several millions, and the effect of slips on man-made structures is fairly devastating. Of the three forms of slips already described, the most common are the *soil slips* that are generally of small magnitude as regards their length or extent and affected height. The *debris slips* are the next, that are generally of greater magnitude and more devastating. The third type, viz., the *rock slips*, though the most devastating, are of very rare occurrence in Darjeeling.

Susceptibility to damage is dependent upon a number of inter-related factors or variables. These are summarised below in so far as they contribute to the remote causes of slips:

- (a) Geological nature or formation (including physical and chemical structure) of the different layers of soil and the underlying rocks, and their angles of repose. Not being very old, firm or solid, the geological formation of hills is somewhat weak and insecure in many places. Some of the hills are of highly fractured and fissured gneissic rocks, which have been decomposed to considerable

depths below the surface by percolating rain-water.

- (ii) Topographical conditions governing the length and steepness of the ground or slopes—particularly the gradient of the land uplift. The areas affected are usually steep. In the Kalimpong subdivision, disintegration of different rocks takes place as a result of weathering and by the continual steepening, by river erosion, of the hill-slopes supporting the weathered material.
- (iii) Climatic conditions governing the characteristics of temperature, rainfall, snowfall, wind and frost, etc.
- (iv) Periodic earthquakes causing disturbances to the physical features of the region.
- (v) Undermining action of spring water at the foot of slopes as the surface water percolates through shattered rocks and causes subsidence at higher levels.
- (vi) Interference with the normal or proper drainage, because of snags of fallen trees, boulders, etc.
- (vii) Lack of proper soil-conservation due to injurious biotic factors, as caused by—
 - (a) removal of plant-cover,
 - (b) burning,
 - (c) grazing,
 - (d) primitive methods of cultivation without proper terracing of the land,
 - (e) inadequate provision for proper drainage. The pre-existing *nalas* gradually get widened due to fading of soil and debris from the sides by erosion, which are carried down the channels by their own weight,
 - (f) holding up or diversion of natural streams for protection or irrigation purposes,
 - (g) excavation of pits or quarries at some steep slopes or loose bases of hills, and,
 - (h) injudicious deforestation in Khas Mahal and tea garden forests resulting in bare and unprotected hill slopes.

Landslips usually occur within a short period of heavy rain-storm, and the immediate causes are mentioned below:

- (i) Precipitation of rain at irregular intervals in the form of heavy downpours is the primary factor, since water along with gravity, furnishes the motive power for moving the soil of a slope, which already has exceeded the safe angle of repose.
- (ii) Seepage pressure of percolated water, as a result of heavy rainstorm. Slips on steep slopes may be due to subsoil-water, surface-water and to mountain torrents.

*Rainfall in inches at Darjeeling for 24 hours ending at 08-30 hours I. S. T. of the days from 10-14th June, 1950:

10th	11th	12th	13th	14th
0.54	4.17	17.88	10.16	0.40

- (iii) Steepness and instability of hill slopes;
Their stability depends primarily upon—
 - (a) the angle of slope,
 - (b) the material adjoining the slope,
 - (c) nature of slope—whether bare or covered by vegetation,
 - (d) ground-water conditions.
- (iv) Bad drainage, because of clogged drains commonly found in *bustee* areas.
- (v) Impact of the falling material against land or structure remaining below the portion of slope giving way. Generally the slipped material gains such momentum that it scours a channel along the hill slope along its passage. Such channels later carry the drainage from the top.

Landslides cannot entirely be prevented, but they can certainly be checked and controlled by proper protective measures. The primary factors responsible for soil-movement are abnormally high precipitation and unsatisfactory condition of the land area upon which this precipitation occurs. The extent and duration of the precipitation cannot be changed, but it is possible to tackle the land by prophylactic treatment through the combined measures of engineering, forestry and agriculture. The common measures giving useful protection to different types of land are mentioned below:

(1) *Turfing*—All forms of accelerated sheet or gully erosion may be checked by maintaining, in good condition, the natural sod or herbaceous cover including moss, dried leaves, etc. (especially in non-forested slopes) so as to absorb water and to prevent soil erosion at the time of the surface-run-off. It has been observed that turfed slopes remain stable up to a greater height than bare slopes.

(2) *Afforestation of bare slopes*—The beneficial effect of a permanent forest or vegetative cover on the soil or ground is well-known. While, superficially it acts as a sponge in retaining, or slowly distributing, water and controlling its flow, which could otherwise be subjected to a rapid surface run-off over bare ground with consequent gully and sheet erosions, the forest cover, by its net-work of roots and rootlets below the ground, and by the deep and spongy forest soil resulting from the age-long decomposition of forest litter, holds firmly the upper-layer of the soil over the disintegrating rock underneath. Even when rainwater falls on a forest, the force of the water is broken, first by the crowns of the trees and then by the litter on the ground. This prevents the raindrops from beating the soil particles into suspension and clogging the pores and reducing percolation.

(3) *Well directed and efficient drainage*—As rise of pore water pressure can be lessened by prevention of seepage, it can also be controlled and kept within safe limits by draining out the water

which has already seeped in. For a slope comprising a small vertical height, only one drain along the upper boundary of the area to be protected may be sufficient. But for greater heights several drains along different contours may be necessary to ensure full protection. The drains are to lead into natural gullies or *jhoras* to the sides which should be lined to prevent percolation of the water thus drained out. All drains and *jhoras* must be maintained efficiently in order to serve their purpose.

(4) *Gully control and construction of diversion ditches.*

(5) *Reduction of the steepness of the hill slopes by terracing*—As already pointed out, the slope of the ground surface plays an important part in causing landslips. Though theoretically correct, it is not practicable to reduce the slope angle of natural slopes except only in small portions and that, too, at the cost of another portion where the slope angle has to be correspondingly increased.

(6) *Protection of the harder rock out-crops* and outward protection of the soil-cap by means of revetment and buttresses.

(7) *Systematic quarrying in hill sides*—All quarrying below the threatened hill sides must be stopped.

(8) *Control of the erosive action of streams and water-falls*—For this, dams have to be constructed for storing water and channels for the purpose of directing and spreading it.

The measures recommended for protection against landslips in populated areas, are mentioned below. An ideal thing will be the mapping of structural features of rocks on large scale plans and demarcation of areas as stable, semi-stable and unstable for the purposes of house construction. The advice of soil mechanic engineers will be helpful for calculation of theoretical value of earth pressures from actual physical tests.

(1) *Turfing and planting of cuttings of quick-growing species of herbs and shrubs like ashare (Viburnum sp.), phalido (Erythrina sp.) and ornamental and fruit trees in all relatively steep areas.*

(2) *Making provision for efficient drainage by the construction of contour channels and drains above the roads.* The drainage is also to be guided from the top by properly lined drains into *jhoras* well below the top of the edge of the slope.

(3) *Terracing and protection by constructing revetment, retaining and breast walls, where necessary.* Terrace-like trenches and check-dams are to be built for the purpose of holding water long enough for it to sink into the soil and prevent rapid surface run-off. Being very costly, retaining or revetment walls can only be recommended where such expenditure is justifiable. They can be built against back cut faces of sites for houses to protect the latter against slips. Their present standard designs need improvement on an estimate of the

pressure exerted against the wall by the material forming the slope. Failures of some of the revetment walls, especially old ones, is due to seepage pressure. Hence, prevention of the accumulation of water behind the wall is necessary. This may usually be ensured by provision of weep-holes through the revetment walls. It may be mentioned here that the reinforced concrete revetment walls in Darjeeling were not provided with such weep-holes. These in the masonry walls were again choked with fine grain material obviously infiltrated from the back of the wall. A proper weep-hole can be provided by embedding rows of 4" pipes through the masonry.

(4) Provision for light structures of building—Of late, the expansion of urban areas has depleted the forest-clad hills of most of their trees even from the dangerously steep slopes; and, what was once a town of light cottages, has, during the last few years, been converted into an ill-planned town, closely dotted with heavy concrete buildings and hutments.

(5) Provision for check-dams, brushwood dams, steppings, etc., for reducing the velocity of water as well as draining the *jhoras*. Pucca drains, wide enough to pass the storm discharges should be taken from the top down below the lower limb in all parts of the town.

(6) Terracing of the slips on easy gradients and plugging the cracks with stones, earth and brushwood, etc.

(7) Planting up road and *jhora* margins with trees and shrubs.

(8) Proper maintenance of roads—The roads must be carefully laid out to shed water without erosion and provided with appropriate facilities, such as, culverts and ditches, paved where necessary, to carry off the water. In order to protect roads from the effects of violent rainfall these ditches and culverts should constantly be kept free from weeds, silt and dead leaves. Cuts and fills are particularly likely to erode, and must be kept in condition by sodding, planting trees or other plants and by using correct angles of slopes and sometimes by crib work or retaining walls.

Cultivation in the slopes within the *bustee* areas helps in the percolation of water and thus enhances the chances of slipping. Such cultivation should be discouraged. In cultivated areas, under a proper system for the conservative use of land, the following measures have to be taken for protection against landslips, besides, of course, most of what have been prescribed above:

(1) Introduction (by legislation, if necessary) of scientific contour-terracing for all forms of cultivation—the terraces sloping inwards with a proper system of drainage the outer margins of such terraces being strengthened by stones and by planting the cuttings of quick-growing local species.

(2) *Avoiding cultivation at very steep areas*—All measures causing or favouring the loosening of the soil, e.g., extraction of stumps, pasturing cattle, trenching the soil, removal of litter, etc., should be avoided in steep places.

(3) Retention of shelter or protection belts of trees (fruit or other species) at the lower edges of cultivated lands, and at suitable intervals along the contours, which should be more frequent on steeper slopes.

(4) Planting along the margins of *jhoras*, keeping the *jhoras* clean of brushwood, etc.

(5) Engineering works of a simple and inexpensive type, e.g., by (a) check-dams of various types to check the velocity of water, (b) paving of various types, (c) diversion ditches and (d) terraces with retaining walls.

(6) Closure of such areas to firing and grazing.

(7) Careful maintenance of a continuous woody growth on mountain peaks, ridges and at dangerous slopes. Lands ruined for agricultural purposes can be made productive again by establishing a forest cover.

The ideal management of these hill forests is the maintenance of a fully stocked forest with an adequate forest floor—by preventing forest fires, eliminating grazing and on critical sites by avoiding heavy fellings of trees. The forest must be kept in the best condition to absorb water, which means that the forest floor should be as sponge-like as possible—not compacted, nor swept bare of its undergrowths by fire or grazing. The forest must have plentiful forest litter and ground cover. The maintenance of protective forests, wherever necessary to check erosion, to minimise danger of landslips, and to regulate the water-supply is a fundamental object of forest management in the working plans of the three Hill Divisions of Darjeeling, Kurseong and Kalimpong, in which all the reserved forests of the district have been included. Damage to forests by fire is controlled by the maintenance of wide and well-regulated fire lines at convenient intervals. With regard to grazing in the reserved forests, the policy is to permit it as far as it does not damage the forests. Cattle in *bathans* are stall-fed but have an open fenced-in area in which they can exercise. No comprehensive scheme for taking protective measures in areas outside the forest reserves has yet materialised, except one or two areas in Kalimpong that have lately been made over to the Forest Department for protection and afforestation.

One such area is the Dalapchan slip in Kalimpong subdivision. Here landslides had been going on for several years to such an extent that they had cost Government thousands of rupees every year in repairs to an important road. In 1940, an area of 188 acres was made over to the Forest Department for re-afforestation. In 1942, some

such areas of unstable land in the Kalimpong Development Area ranging from less than one acre to 40 acres each and totalling 173 acres were similarly made over to the Forest Department for protection by afforestation. Since then, more areas have been added to the Dalapchan Reserve, Dalapchan Ridge Reserve and the Kalimpong Development areas to measure approximately 1.09 square miles that have been made over to the Forest Department for protection purposes.

The area was first (i) fenced with wire fencing to prevent grazing. Free passage to (ii) rain water over the area was diverted in other directions by making artificial channels and (iii) slip hill sides were terraced to check continuous run-off. In badly slipped areas costly (iv) protective walls and fascine walls have been made to allow the soil to settle down. All these areas have been (v) planted up with suitable fast-growing species, and as a result the soil has been stabilised and the threat of landslip has been removed to a great extent.

While protection works are being systematically done in the reserved forest areas of Kurseong, nothing has yet been done in the private lands because of diverse ownership. Proposals for acquisition and afforestation of Khas Mahal and other lands that are particularly unstable are being formulated, especially following the 1950 disaster.

The measures adopted by the Forest Department in Darjeeling subdivision have been as follows:

- (i) Construction of check dams, e.g., at the *Pagla jhora* slip,
- (ii) Construction of contour drains, e.g., at Gueyekholla,
- (iii) Training of streams, e.g., at Gueyekholla,
- (iv) Stoppage of clear-felling in Tonglu Range, where landslips have caused considerable damage in some blocks,
- (v) Afforestation of landslip-damaged areas with cuttings of ashare (*Viburnum erubescens*), *phalido* (*Erythrina* sp.), rhizomes of *maling* (*Arundonaria maling*) and *amalisha* (*Thysanoloena agrostis*) bamboos, and entire (transplants) of *utis* (*Alnus nepalensis*), *kapasi* (*Acer* sp.), *lampati* (*Duabanga sonneratioides*), etc.
- (vi) Retention of shelter belts when the width of a strip of forest to be clear-felled is more than 3 chains in width,
- (vii) Terracing the slips on easy gradient,
- (viii) Construction of breast walls and revetment walls,
- (ix) Clearing the streams of all debris so that flow of water is not obstructed, which may cause landslips,
- (x) Planting up unstable banks of streams with *ashare*, *phalido*, and *maling* bamboo.

Little can be done to remedy the more extensive effects of landslips after they have occurred. No

general preventive action against such damages has yet been undertaken. Nor can Government agency alone combat the problem successfully without the active co-operation of the local people. As the first preventive measure, while a continuous woody growth must carefully be maintained on mountain peaks, ridges and all dangerous slopes, the open waste lands must be planted up with fast-growing tree-species, supplemented by avenue and road-side planting as well as planting up edges of *jhoras*. Forests in all protection areas should be managed either by selection or as coppice. Whenever a landslip is to be feared, the bank should be kept up by wattle-fences, by protection of the soil covering and by not extracting the stumps of felled trees. The tree roots form the best insurance for holding large layers of soil once the forest is established. Grazing over such areas must be stopped, as the physical condition of the soil is injured by trampling with sharp hoofs and loosening soil.

The revised National Forest Policy of India, as introduced by the Ministry of Food and Agriculture Resolution (Agriculture) No. 13-1/52-F, dated the 12th May, 1952, has recognised, among other essentials, the imperative necessity of checking denudation on mountainous regions, on which depends the perennial water supply of the river system, and classified some areas to be administered as *Protection Forests*, that must be preserved or created for physical and climatic considerations, besides some *Tree lands*, i.e., areas, which, though outside the scope of the ordinary forest management, are essential for the amelioration of the physical conditions of the country. The National Forest Policy requires an immediate and speedy programme for the conditioning of the mountainous regions, river valleys, and coastal lands by establishing protective forests over larger areas, and preserving the existing ones.

Soil—The soil in the Terai is composed of alluvium, a light sandy loam being the most common. There are also considerable tracts of sandy or gravelly soils, unsuitable for cultivation. In the hills, cultivators recognise only three kinds of soil, white, red and black. Of these, the black soil is the richest, the white the poorest, the red soil occupying an intermediate position, requiring heavy manuring to give as good an outturn as the black. This last is often found among large rocks and is suitable for dry crops (*sukhakhet*) such as maize and marwa (*kodo*) owing to the rich vegetable mould it contains. The fertility of the soil depends much on the geological formation of the underlying rocks from which the soil is derived. The greater portion of the hill area lies on Darjeeling gneiss which most commonly gives a stiff reddish loam but may also produce almost pure sand or a stiff red clay. Generally soils throughout the district are deficient in lime.

The following results of analysis of surface soils from several parts of the district (oven dry basis) are produced by courtesy of the Microbiologist to the Government of West Bengal.

RESULTS OF ANALYSIS OF SURFACE SOIL FROM DIFFERENT PARTS OF THE DISTRICT

(Results on Oven dry basis)

	Name of place (locality)		
	Darjeeling	Kalimpong farm	Kalimpong
Moisture (per cent.)	..	3.93	..
Organic Carbon (per cent.)	..	1.43	..
Loss on solution (per cent.)	..	6.73	..
Coarse sand (per cent.)	..	25.98	..
Fine sand (per cent.)	..	27.125	..
Silt (per cent.)	..	34.125	..
Clay (per cent.)	..	..	..
Carbonate (per cent.)	..	..	..
Total soluble salts (per cent.)	..	..	..
Loss on ignition (per cent.)	..	..	..
Nitrogen (per cent.)	0.106	0.1316	0.1316
P ₂ O ₅ (per cent.)	1.125	..	..
K ₂ O (per cent.)	1.945	..	..
P H	..	6.2	6.2

Flora*—The richness and variety of the vegetation of this district are the result of a number of physiographic, climatic, edaphic and biotic factors. Although it is situated in that part of Asia where China, Tibet and India meet, geographical conditions have meant not so much actual isolation as lack of opportunity for interpretation and types common to these three countries are few.

The configuration of the mountains and hills of the district and the impact upon them of strong moisture-laden monsoon winds from the south greatly influence the character of the vegetation from place to place. The outer spurs have a heavy rainfall and are densely clad with moist forest of tropical and sub-temperate genera. But the valleys and gorges further inside the district have a lower rainfall and tend to bear a drier type of forest. The higher ridges of the interior, however, intercept the moisture of the upper layers of the atmosphere which have passed over the outer spurs and thus develop an exceptionally moist temperate climate in which moss-clad, lichen-draped trees and moist temperate flora thrive.

It is estimated that the plant communities in the district consist of about 4,000 species of flowering plants under 160 families. There are also 300 ferns, including their allies, chiefly *Selaginellas*, *Lycopodiums* and *Equisitums*. Of these about eight species are Tree Ferns. The most common species met with between 2,000 and 5,000 feet is *Cyathea spinulosa*. In addition there are many other non-flowering plants—Liverworts, Mosses, Algae, Fungi and Lichens. Of 180 species of thallose and foliose Liverworts reported from India, about 140 species are recorded from this area of which 72 per cent. are endemic. Abundant green and blue green algae are met with in lakes, water courses, pools and swampy places. A beautiful epiphytic brick-red alga that covers wall, rocks and tree trunks everywhere is the subaerial *Alga-Trentepohlia*

aurea. Iron bacteria of brick-red colour are seen in lumps by the side of water-courses and where water oozes from the hills. Seventy-five species of the hard fungi which attack timber trees have been recorded as occurring in this district.

Taking altitude as the prominent factor in determining range of distribution of the various species, the different associations of plants may be grouped under five main zones—the Plains, the Tropical or Lower Hill Zone, the Subtropical or Middle Hill Zone, the Temperate or Upper Hill Zone and the Alpine Zone.

In the Plains (Terai), communities of tall grass *Saccharum arundinaceum* and developmental association of *Dalbergia sissoo* and *Acacia catechuoides* sometimes mixed with *Albizia odoratissima* and *Albizia procera* cover open river-banks and adjoining open areas. There are also open grass-land and savannah areas covered with tall elephant grass—*Saccharum elephantinum*, *Cymbopogon nardus*, *Arundo donax*, *Neyarudia reynaudiana*, *Saccharum spontaneum*, *Saccharum procerum*, *Narenga porphyrocoma*, *Thysanolaena maxima*, *Desmostachya bipinnata* and others. In swampy areas, groups of *Phragmites karka* are met with. The tree association of this belt is mainly of *Shorea robusta*, *Lagerstroemia parviflora*, *Mallotus philippensis*, *Terminalia* species, *Erythrina* species, *Garuga pinnata*, *Albizia* species and may be termed the *Shorea - Lagerstroemia - Stereospermum - Terminalia-Garuga-Albizia-Erythrina* association.

The Lower Hill Zone forms a definite belt of vegetation from the plains up to 3,000 feet and upwards in a rather rapid ascent. This belt of about 1,500 feet and more is very unhealthy and is clothed in fairly dense forest, mainly Malayan in character and composed of trees commonly met with in the hotter parts of India. There are about 850 species of trees and shrubs in this belt and among these many are timber trees. The dominant species are *Shorea robusta* (Sal) and others belong to the families of *Orchidaceae*, *Leguminosae*, *Gramineae*, *Urticaceae*, *Euphorbiaceae*, *Cyperaceae*,

*I am grateful to Dr. K. Biswas, D. Sc., F. N. I., Director of Botanical Survey, India, for having revised the draft of this section—A. M.

Rubiaceae, *Compositae*, *Asclepiadaceae* and *Acanthaceae*. The interior of the forest is marked by three storeys:—The ground vegetation with a thick undergrowth of herbs and shrubs, the second storey of tall shrubs and small trees and in some places Bamboos and Canes and a third storey of tall trees forming the overhead canopy. Large climbers and lianes interlock the branches of taller trees. *Bauhinia vahlii*, *Beaumontia grandiflora*, *Entada scandans*, *Pothos* and *Rhaphidophora* species, *Tinospora cordifolia*, *Combretum* species, *Millettia pachycarpa*, *Cissampelos pareira*, *Cissus repanda* (wood holding large quantity of water) and other lianes are met with in this forest and associates of *Shorea* - *Phoebe* - *Dillenia* - *Amoora* - *Eugenia-Bauhinia* frequently occur.

The Subtropical or Middle Hill Zone extends from 3,000 to 6,000 feet. At 3,000 feet association of *Duabanga* - *Castanopsis* - *Syzygium* - *Phoebe* - *Callicarpa* is observed but the principal association is *Engelhardtia* - *Castanopsis* - *Schima* - *Betula*, the extensive range of this associations being due to the fact that there is no change in geological formation, the whole area being on Sikkim gneiss. Between 4,000 and 5,000 feet associations of *Schima-Ostodes-Castanopsis* and higher up *Machilus* - *Michelia* - *Castanopsis* - *Magnolia* sometimes mixed with *Pandanus* species are often noticed.

Gamble remarks "The European character of this Middle Hill Forest is sometimes very remarkable; in one small forest near Kalimpong the following trees were found, though of course the species were different:—Oak, chestnut, cherry, maple, birch, alder, all of them fine large trees. A noticeable feature in many of these forests is the prevalence of tree ferns, *Alsophilas*, with tall graceful stems and feathery foliage making them at once the most conspicuous and the most beautiful of forest plants; the dense thickets of hill cane *Plectocomia himalayica*, especially found wherever the rocks are too steep for big trees; and the multitude of large-leaved *Aralias* whose leaves are often much used for feeding cattle."

The species found in the zone are *Castanopsis tribuloides*, *Machilus* species, *Quercus spicata*, *Schima wallichii*, *Castanopsis indica*, *Phoebe lanceolata*, *Erythria stricta*, *Callicarpa arborea*, *Terminalia myriocarpa*, *Jambosa ramosissima*, *Engelhardtia spicata*, *Betula cylindrostachys*, *Alnus nepalensis*, *Talauma hodgsoni*, *Cinnamomum cecicodaphne*, *Evodia fraxinifolia*, *Quercus lancaefolia*, *Ostodes paniculata*, *Eurya* species, *Prunus nepalensis*, *Magnolia campbellii*, *Quercus lineata*, *Acer thomsoni*, *Machilus odoratissima*, *Syzygium kurzii*, *Erythrina arborecens*, *Elaeocarpus lanceafolius*, *Acer lacvigatum*, *Brassaiopsis* species, *Machilus edulis*, *Symplocos* species and *Echinocarpus dasyarpus*.

In the Temperate or Upper Hill Zone and the Alpine Zone changes in the composition of plant communities are observed in the succession of vegetation from 6,000 to 12,000 feet. The two

zones are roughly divisible into a lower non-coniferous and an upper coniferous and *Rhododendron* belt; but the line of demarcation between these varies so greatly with the exposure and humidity of the locality that they cannot be dealt with apart. Of about 100 families of flowering plants that occur in these zones, ten families dominate, viz., *Orchidaceae*, *Compositae*, *Gramineae*, *Rosaceae*, *Cyperaceae*, *Geraniaceae*, *Ericaceae*, *Liliaceae*, *Labiatae* and *Umbelliferae*.

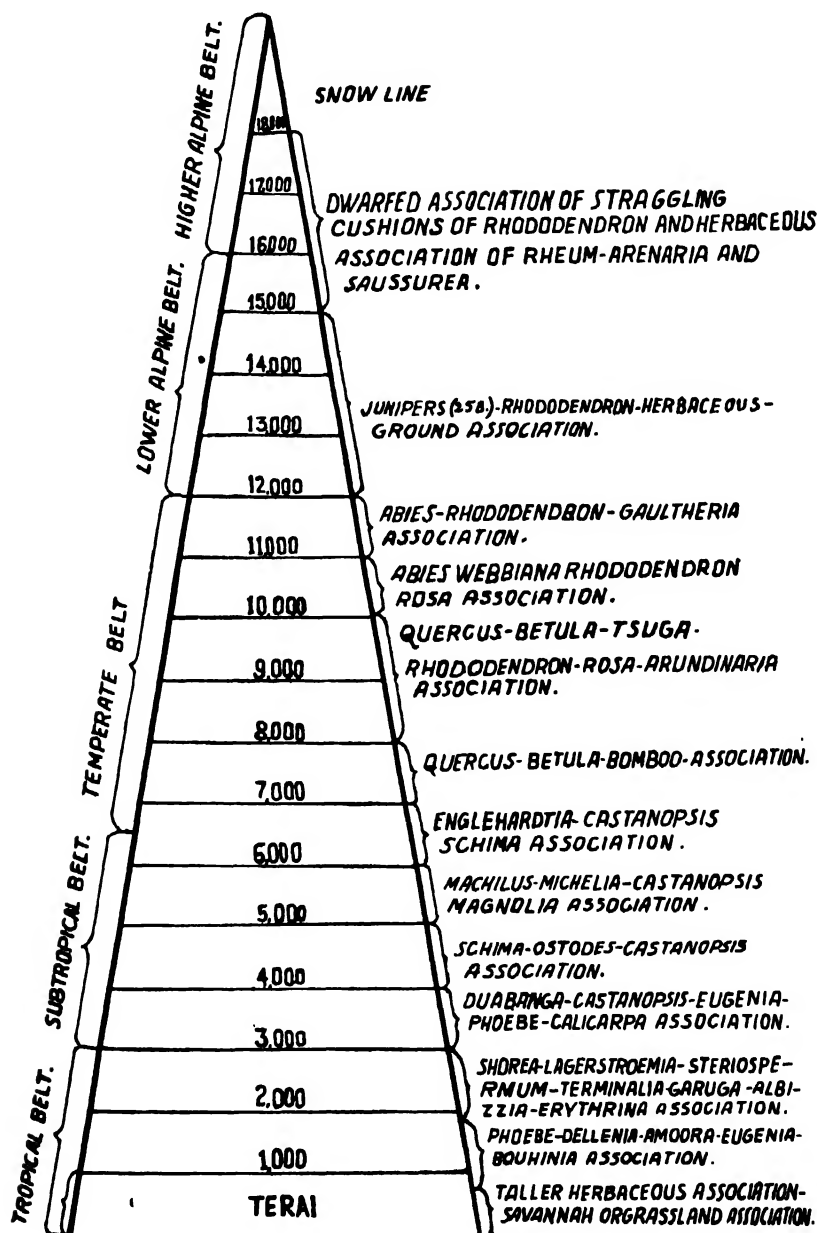
Of the above families, the *Orchidaceae* alone are strongly Malayan in character; the others are mostly European, Central Asian, Japanese or Chinese. The most conspicuous trees are *Magnoliaceae* (five species), of which one, *Magnolia campbellii*, before the destruction of the forests, clothed the slopes around Darjeeling starring them in spring, when still leafless, with magnificent pink and white flowers. Other conspicuous trees of these zones are Oaks, Laurels, Maples, Birches, Alders, *Bucklandias*, *Pyrus*, and *Conifera*. Of these, the *Conifera* are chiefly confined to the Subalpine and Alpine Zone from 9,000 to 12,000 feet in elevation. The monarch and most common of them in Webb's Himalayan Fir (*Abies Webbiana*), which is also the most gregarious; others are the English Yew, the Sikkim Spruce (*Picea motindoides*), a Larch (*Larix griffithiana*, the only deciduous Conifer in the Himalaya), the weeping *Tsuga brunoniana* and two species of Juniper *J. recurva* and *J. pseudo-sabina*, both of which, specially the latter in dwarf forms, ascend high beyond the Alpine Zone. The absence of any true Pine or Cypress in the forest of this region of the Himalaya is notable, in contrast with similar elevations in the Western Himalaya. Of small trees and shrubs the most conspicuous are the *Rhododendrons* (about 25 species), which abound between 9,000 and 12,000 feet elevations, some of them forming impenetrable thickets a few of these are arboreous particularly *R. arboreum* which attain 50-60 feet in height though the rest generally not attaining any great height. Other climbers and scandent shrubs are species of *Clematis Mahonia*, *Berberis*, *Ilex*, *Rosa*, *Rubus*, *Cotoneaster*, *Spiraea*, *Hydrangea*, *Aucuba*, *Lonicera*, *Levecesteria*, *Osmanthus*, *Osbeckia*, *Luculia*, *Buddleia*, *Vacciniaceae* (some epiphytic), *Ericaceae*, *Sambucus*, *Viburnum*, *Polygonum* and Ivy. Beautiful herbaceous plants abound—*Anemones*, *Aconites*, *Violas*, many species of *Impatiens*, *Potentilla*, *Saxifragas*, *Fragaria*, *Taraxacum*, *Gentianaceae*, and numbers of the families of *Campanulaceae*, *Gesneriaceae*, *Scrophulariaceae*, *Orchidaceae*, the most common being *Ceologyne* (8 species), *Ceologyne*, *Cypripediums* and others. Species of *Polygonatum*, *Smilacina*, *Lilium*, *Fritillaria*, *Arisaema* and others are also common. Only two Palms inhabit this zone, a scandent rattan (*Plectocomia himalaica*) and a very rare Fan-palm (*Trachycarpus martiana*). Dwarf bamboos, of which there are six species, abound, some of them forming impenetrable thickets infested with leeches and large ticks. Ferns are also characteristic of an luxuriant in the lower belt but less abundant in the

Subalpine and Alpine zones. The bamboo *Arundinaria* species forms in some open spaces dense associations between 8,000 feet and here associates and consociates of bamboos are often met with particularly after a forest fire.

The plant communities commonly observed in these zones are the associations of *Engelhardtia-Castanopsis-Schima* between 6,000 and 7,000: *Quercus-Betula-Rosa-Bamboo* between 7,000 and 8,000: *Rhododendron-Rosa-Arundinaria* between 8,000 and 9,000: *Quercus-Betula-Tsuga* between

9,000 and 10,000: *Abies webbiana-Rhododendron-Rosa* between 10,000 and 11,000 and *Abies-Rhododendron-Gaultheria* between 11,000 and 12,000 feet.

There is a higher Alpine Zone in Sikkim which descends to about 12,000 feet from the upper limit of the existence of flowering plants and may be usefully mentioned in connection with the vegetation of the Darjeeling district. This higher zone presents two climates with conforming differences in their vegetation. The number of species of



ALTITUDINAL SUCCESSION OF VEGETATION.

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flowering plants recorded for this zone is about 400, no doubt far below the figure to which future collectors will raise it. They include 46 families, of which *Compositae*, *Scrophulariaceae*, *Primulaceae*, *Saxifragaceae*, *Cruciferae*, *Caryophyllaceae*, *Ranunculaceae*, *Cyperaceae*, *Gramineae* and *Fumariaceae* are the dominant.

Of the above, the first three greatly outnumber the others, some of which may give place to *Rosaceae*, *Gentianaceae*, or *Umbellifera*. The largest genera are *Pedicularis*, *Primula*, *Corydalis* and *Saxifraga*. The low position of *Cyperaceae* and *Gramineae* in the decade is in notable contrast to the Western Himalayan decade; but future herborizations may bring them up higher. The few trees to be found only on the lower skirts of the zone are scattered Birches and *Pyri*. The principal bushes are *Rhododendrons* (of which several species reach 14,000 feet), *Ephedra*, *Berberis*, *Lonicera*, *Caragana*, *Rosa*, *Cotoneaster*, *Spiraea* and *Salix* (dwarf Willows) *Arenarias* and others. Of ferns there are very few. Few species reach above 15,000 feet elevation, some of them a little higher in some places. The highest recorded plant is a *Festuca* species at about 18,300 feet. In drier valleys about 15,000 feet elevation, several species of *Arenaria* occur; these form hard, somewhat hemispheric globose white cushions and are a characteristic feature in the desolate landscape. By far the most striking plants of this zone are species of *Meconopsis*, *Rheum nobile*, the *Lontopodon* (*Edelweiss*), many *Primulas*, *Tanacetum*, *Gossypinum*, *Saussurea obvallata* and *gossypiphora* and the odorous *Rhododendron anthopogon*. A species of Moss, *Aongstroemia julacea* was collected from the highest altitude 19,800 feet by Somervell on Mt. Everest.

The succession of vegetation in these different zones, namely, the Plains, the Lower Hill, the Middle Hill, the Upper Hill, the Alpine and the Sikkim Alpine Zones is shown in the diagram—(see page XIX).

It was formerly supposed that there was a considerable European element in the temperate flora of the Himalaya in addition to the Tibetan and Siberian floras and that Chinese and Japanese elements were strongly represented in the temperate belt. This theory cannot be maintained in view of recent research.

Of the flora in and about the town of Darjeeling, including both wild and cultivated species, nearly 50 per cent. are indigenous to the Himalaya. The rest of the plants under cultivation in Darjeeling are of foreign species of which Japan has supplied about 14 per cent., North America 7 per cent., Australia 6 per cent., China 6 per cent., Malay 4 per cent., Europe 4 per cent., South America 3 per cent., Tropical Asia 3 per cent., Central America 2 per cent., Burma 1 per cent., and Africa 0.5 per cent.

A recent survey of species of plants occurring in India gives the number of endemic species in

the Himalaya as 3,165. Nearly 70 per cent. of the known species are endemic, which is a much higher percentage than was estimated earlier.

The moist and sunless condition of the monsoon period have a checking effect on many forms of plant life, particularly at the higher and cooler altitudes. There the effect is more noticeable because the severe cold of the winter shortens the period of growth. The culture of certain fruit, for example, fails because there is not time for ripening before the onset of the monsoon. Gardening in Darjeeling, consequently, has two flowering seasons. The better is the pre-monsoon season for which seeds of annuals are sown in September and seedlings are planted out in November to show little growth until the spring. The other season is the autumn, when a show of flowers is possible by the use of seedlings raised while the first season's display is at its height and planted out before the rains set in. These are limited to a few varieties that will stand the soaking and will bloom in September or October.

Throughout the year, temperate climate perennials and biennials add their flowers to those of the annuals: some however give disappointing results because their natural flowering time coincides with that of the heaviest rainfall. In spite of the heavy rainfall laurels do very well indeed and the flowers of dahlias, chrysanthemums, Petunias, Asters, Begonias and others present a magnificent sight.

Fauna—Due to the diversity of elevation, climate and vegetation the Fauna of this district is varied and interesting. There is still much to be learnt specially in regard to local migration, which depends greatly on climatic conditions and food supply.

Mammals—The mammals consist of between 80 and 90 species, some of which are dealt with below. There are two monkeys, the common Rhesus (*Macaca m. mulatta*) and the Nepal seen on Birch Hill in Darjeeling. Cats are well represented. The Indian Tiger (*Panthera t. tigris*) is common in the plains and has been known to ascend as high as 10,000 feet in hills: Leopards (*Panthera pardus* sp.) are likewise common and may also be found at high elevations. Among the rarer cats are the Nepal Clouded Leopard (*Neofelis nebulosa macrosceloides*), the East Himalayan Marbled Cat (*Pardofelis marmorata charltoni*) and the Golden Cat (*Profelis t. temminckii*). Other cats are the pretty Horsfield's Leopard-Cat (*Prionailurus bengalensis horsfieldi*), the Fishing Cat (*Prionailurus viverrinus*) and the Himalayan Jungle-Cat (*Felis chaus affinis*): the last is the commonest of these. There are five Civets: the Tiger-Civet (*Prionodon pardicolor*) and the Naga Hills Palm-Civet (*Paguma larvata neglecta*) occur above 2,000 feet: the others, the Large Indian Civet (*Viverra z. zibetha*), the Bhutan Duars Little Civet (*Viverricula indica baptistae*) and the

Northern Palm Civet (*Paradoxurus hermaphroditus pallasi*) are found in the hills and the plains.

The Crab-eating Mongoose (*Herpestes urva*), the largest of three mongooses, is also found both in the hills and plains. There are three species of *Canidae*, the Himalayan Jackal (*Canis aureus indicus*), the Hill Fox (*Vulpes bengalensis*) and the Nepal Wild Dog (*Cuon alpinus primoevus*): the last is seldom met with. Two Bears occur, the Indian Sloth Bear (*Melursus u. ursinus*) and the Himalayan Black Bear (*Selenarctos t. thibetanus*). The former lives in the plains and foothills; the latter is common up to 7,500 feet and occasionally comes down to plains level. It does considerable damage to the maize crop in the hills, destroying more than it can eat: it also feeds on roots, fruit, carrion and sometimes kills cattle. All bears are short-sighted and, if stumbled upon, are likely to attack. An interesting animal is the Panda (*Ailurus f. fulgens*) found in the hill forests about 7,000 feet. Many of its chestnut-red skins may be seen in Darjeeling furriers' shops.

Space will not permit the mention of all the otters, martens and weasels. The Northern India Yellow-bellied Marten (*Charronia f. flavigula*) is detested by all who preserve game or keep poultry on account of its predatory habits. Squirrels, rats, mice and bats are far too numerous for details of all to be given here but two squirrels deserve mention, the Himalayan Flying-Squirrel (*Petaurista nobilis*) found in the hills and the Assam Giant Squirrel (*Ratufa g. gigantea*) found both in the plains and the hills. The former may sometimes be seen in the heart of Darjeeling and it is interesting to watch it "flying" from one tree to another: this it does by spreading out the membrane which connects the limbs and springing from a height in one tree, landing lower down on a neighbouring one. Three porcupines and one hare occur in the district.

The Gaur (*Bibos g. gaurus*), usually called "Bison", is found in the forests of the foothills and the Terai and is strictly preserved. One unfortunate individual strayed far from its normal haunts and visited Darjeeling on the 8th May 1922. It was first seen below St. Paul's School and gradually worked its way down the hill to the Chowrasta where it quenched its thirst at the fountain. It wandered about and then took a road down to Lebong, killing two persons on its way: it was ultimately shot in the Phubsering forest. These animals go about in herds but bulls are sometimes solitary and can be very dangerous.

Two species of the goat tribe are found in the hills, Jarnach's Serow (*Capricornis sumatrensis jarnachi*) and the Brown Himalayan Goral (*Nemorhaedus hodgsoni*), at elevations between 2,000 and 9,000 feet. The serow loves wooded gorges and the goral precipitous slopes. They give fine sport if stalked on foot. There are four or five species of deer: the two commonest are the Bengal Barking-Deer (*Muntiacus vaginalis*) and

the Sambhur (*Rusa u. unicolor*). The former is found all over the district and its barking call is frequently heard: the latter is the largest of our deer inhabiting the plains and hills up to 3,000 feet. The Chital (*Axis a. axis*) is the most beautiful of them. It is not common and loves glades and forests near streams. It is gregarious and is strictly preserved.

There is one pig in the district, the Indian Wild Boar (*Sus c. cristatus*) found in the plains and ascending the hills as high as 8,000 feet.

The Indian elephant (*Elephas m. maximus*) is now rather rare in the district. It has been reputed to ascend as high as the Rishi La (10,300 feet). It is usually found in herds but old males live alone and are apt to be vicious. Elephants are destructive to crops, especially paddy, but there is a bearded variety of paddy which up to the present elephants will not touch. *Kheddas* were held in the Terai many years ago.

The last thirty years have wrought great changes in the distribution and numbers of animals in the district, due to the reduction in the area under forest, the extension of motor roads and a huge increase in the number of gun licences. From the dense forests of the Terai, through the valleys of the Tista, Rangit and Balasan rivers to the high forests of the Singalila ridge there could formerly be found elephant, tiger, sambhur, large herds of spotted deer and pig, leopard, bear, goral and serow. Nowadays the elephant is only a casual visitor and the few tigers that still roam the foothills are forced to supplement their natural diet of sambhur, spotted deer and pig with cattle from the jungle villages. The leopard still flourishes in the plains jungle and the lower hills and sloth bear too may be quite often met; but in the mountains, the serow and goral are rapidly disappearing as their rocky fastnesses are invaded by man. The Himalayan black bear, once such a menace to the cultivator is sharing the same fate. The barking deer alone appears to be holding its own in spite of everything.

Of the rarer animals especial mention must be made of the Clouded Leopard, with its beautiful tortoiseshell markings, very seldom seen but commoner than is usually supposed; and of the Bay or Golden Cat about which very little is known. The latter grows up to 31 lbs. in weight at least and has been known to kill goats, visiting the village pens at night. Its colour is a bright foxy red, with curious yellow markings about the face: tabby and melanistic skins with the same facial marking are said to be those of varieties of this species.

The rarest and undoubtedly the most curious animal is the Pangolin (*Manis pentadactyla*) which is about 2½ feet long and has thick scales like an armadillo. It is a nocturnal animal, lives in deep and secluded burrows and is very seldom seen. It is found both in the hills and the plains.

Among the smaller mammals, the Himalayan wild cat, leopard cat, large Indian civet, palm-civet, pine-marten and porcupine are still found in large numbers all over the district and do great damage to game and poultry.

Birds—The district is very rich in bird life, there being nearly 550 species within its limits. Of these more than half are passerine birds, the largest families being the *Timaliidae* (Laughing-Thrushes, Babblers, etc.) with 61 species; and *Turdidae* (Chats, Thrushes, etc.) with 56; the *Sylviidae* (Warblers) with 60; the *Muscicapidae* (Flycatchers) with 27; and the *Fringillidae* (Finches) with 22. The *Passeres* found in the district include some of the most beautiful birds, especially the Flycatchers, Minivets, the Darjeeling Fairy Bluebird (*Irena puella sikkimensis*), Orioles, Finches, Sunbirds and the Long-tailed Broadbill (*Psarisomus dalhousiae*). The ubiquitous Indian House-Sparrow (*Passer domesticus indicus*) has not yet penetrated into the station of Darjeeling, the more pleasing Malay Tree-Sparrow (*Passer montanus malaccensis*) reigning supreme.

The best represented families in the *Coraciiformes* are the *Picidae* (Woodpeckers) with 15 species; the *Cuculidae* (Cuckoos) with 16 and the *Asionidae* (owls) with 14. Amongst the Woodpeckers the handsomest are the Large Yellow-naped Woodpecker (*Chrysophlegma f. flavinucha*) and Tickell's Golden-backed Woodpecker (*Chrysocolaptes g. guttacrastatus*); the tiny Indian Rufous Piculet (*Sasis o. ochracea*) is also found. Amongst the cuckoos there is the beautiful Emerald Cuckoo (*Chalcitis m. maculatus*).

Female hornbills have the peculiar habit of plastering up the entrance of the hole in which they will be incarcerated during the rearing of the young with their own ordure leaving only a vertical slit through which they are fed by the males. There are five species of hornbills found in the district including the Indian Great Hornbill (*Dichocheros b. bicornis*). Eight species of kingfisher, some of the most beautiful birds of the order, occur in the district specially noteworthy being the tiny Indian three-toed kingfisher (*Ceyx e. erithaca*) a forest species which, when it flashes ahead, resembles a gem of vivid lilac or gleaming blue.

Fifteen owls are found, but one belongs to a separate family. They vary in size from the largest Forest Eagle-Owl (*Huhua nipalensis*), which is powerful enough to kill peafowl and take cats from villages, to the tiny Eastern Collared Pigmy Owllet (*Glaucidium brodiei tubiger*).

Accipitrine birds number about 40 and include the fine Himalayan Lammergeyer (*Gypaetus barbatus himachalanus*), Hodgson's Feather-toed Hawk-Eagle (*Spizaetus n. nipalensis*), the Himalayan Rufousbellied Hawk-Eagle (*Lophotriorchis k. kieneri*) and the handsome, bold miniature Falcon, the Himalayan Red-legged Falconet (*Microphierax c. coeruleus*). One of these was found

once with its claws so fast embedded in a Tibetan Ruby-Throat (*Cyanosylvia pectoralis tschebaisi*), a bird not much smaller than itself, that it could not rise and was captured by hand: another in the plains was seen to dash into a verandah in an attempt to capture a canary in cage.

There are about a dozen species of pigeon and dove, some being only found at high elevations. One found in the plains is the Bengal Green-Pigeon (*Crocopus p. phoenicopterus*). In the hills, the Kokla tailed Green-Pigeon (*Sphenocercus s. spenurus*) and the Himalayan Pin-tailed Green-Pigeon (*Sphenocercus a. apicaudus*) are common. The melodious call of the former may be heard even in Darjeeling. The latter can be easily recognized by the long pointed central tail feathers. Both descend to the foothills. A very fine pigeon, Hodgson's Imperial Pigeon (*Ducula Badia insignis*), is found in the hills up to 6,000 feet and though it has not been found in the plains area of the district, it has been noticed in the plains forests of the Jalpaiguri district. The Ashy Wood-Pigeon (*Columba pulchricollis*) is found between 6,000 and 8,000 feet: it is to be seen on Birch Hill (6,874 feet) in Darjeeling and, although a bird of high elevations, it does occur in the foothills during the winter. The Speckled Wood-Pigeon (*Dendrotreron hodgsonii*) is generally found at higher elevations but it has been noticed as low as 5,500 feet. The beautiful Emerald Dove (*Chalcophaps i. indica*) occurs from plains level up to 6,000 feet. It is often seen rising from forest roads and flying away at great speed, its metallic green colours glinting when the sun shines on it. The Indian Bar-tailed Cuckoo-Dove (*Macropygia unchall tusalia*) is a forest bird occurring from plains level up to 7,400 feet. The male has the head and neck beautifully glossed and the back barred black and chestnut: the hen has the same coloured back and its lower plumage is barred buff and dark brown: these birds have long tails.

The game-birds are of eight species. The Indian Red Jungle-Fowl (*Gallus bankiva murghi*) the ancestor of our domestic fowls, is common in the forests of the plains and ascends the hills to over 4,500 feet. The Black-backed Kalij Pheasant (*Gennocus melanotus*) ranges from the foothills up to about 8,000 feet; these birds live in forest but often come into tea. The Monal (*Lophophorus impejanus*) formerly occurred on the Singalila ridge at altitude between 10,000 and 12,000 feet, but it is doubtful if any survive there now or on Sanchal (8,600 feet) where it had been reintroduced by the Fishing and Shooting Club. The cock is resplendent in metallic bronze, green and purple and has a metallic green crest. The Crimson Horned-Pheasant or Tragopan (*Tragopan satyra*) is the "Monal" of the hill folk and is found between 8,000 and 12,000 feet. It occurs on the Singalila Ridge: specimens are frequently brought to Darjeeling. The lower plumage of the

cock is crimson spotted with white, and blue fleshy horns are present above each eye. The Blood Pheasant (*Ithaginis oruentus*) is found on the same ridge between 10,000 and 12,000 feet. The cock is green below with splashes of crimson on the breast varying in extent. These are stupid birds and so tame that a so-called sportsman once wiped out a whole covey. In the hills there are two partridges, the Assam Common Hill-Partridge (*Arborophila t. torqueola*) and Blyth's Rufous-throated Hill-Partridge (*Arborophila r. rufogularis*): the latter is found in forests from 2,000 to 8,000 feet and the former from 7,000 to 10,000 feet. They do not rise readily, preferring their legs to their wings. The Common Grey Quail (*Coturnix c. coturnix*) is sparingly found in the hills during winter at elevations between 5,000 and 6,000 feet. There are two three-toed quail; the Burmese Bustard-Quail (*Turnix suscitator plumbeipes*), and, more rare, the Indian Large Button-Quail (*Turnix t. tanki*). The males are fought for by the females and to them is given the task of incubating the eggs and bringing up the young.

The remaining Orders are briefly mentioned. The Woodcock (*Scolopax r. rusticola*) is found in the hills where it is regularly shot. A nest with eggs was taken at Sandakphu (11,929 feet) in July 1904. Woodcock are found of cardamom patches. In the hills are found the Wood-snipe (*Nemoricola n. nemoricola*) and the Eastern Solitary Snipe (*Neospilura solitaria*). The former is a dark coloured bird found above 3,200 feet and is much commoner than the latter. The Solitary Snipe is somewhat similar to a large sized common snipe. It is rare and found up to 10,000 feet or even higher but does descent to the foothills. One was obtained near Sukna in the month of December. The Fantail Snipe (*Capella stenura*) are both regularly shot in the district. Amongst the plovers the Eastern Golden Plover (*Pluvialis dominicus fulvus*) is found in the Terai: the Ibis-Bill (*Ibidorhyncha struthersii*) is a bird of high elevations but during the winter, can be found in the beds of the Great Rangit and Tista rivers. It moves in small parties and is not shy.

A fine heron, the Great White-bellied Heron (*Ardea imperialis*) is occasionally seen on the Tista and in the forests of the foothills on the Gulma river. Ducks are poorly represented in the district. The Eastern Goosander (*Mergus merganser orientalis*) is a handsome duck often seen in parties on the Tista. The Bar-headed Goose (*Anser indicus*) has been shot on the Rammam river during the winter and unidentified geese have often been seen going north.

Darjeeling district contains nearly one-quarter of the species of birds found in India, Burma and Ceylon. In spite of this, the visitor's first impression is that there are very few birds about. The frequent mists and clouds and the many patches of fir trees with dark interiors and lack of undergrowth are not conducive to successful bird-watching. Birds react to sunny days like human beings and

it is on such days and especially in the early mornings and evenings that they are most easily observed.

Although a great number of species, Crows, Laughing-thrushes, Babblers, Bush-Warblers, Mynas, Sunbirds, Woodpeckers, most of the Owls and about half the Hawks and Eagles are strictly resident, large number of birds are local migrants, moving up and down the hills according to season. Others are passage-migrants, merely using the district as a port of call on their way from their breeding haunts in Siberia, Tibet or China to the Plains of India.

The tendency among all birds in India is to go north to breed and south for the winter. Thrushes, Flycatchers, Willow-Warblers, Shrikes, Swallows, Cuckoos, Pigeons and Woodcock all breed on the higher mountains and work their way down to the foothills and sometimes well out into the plains in the autumn, returning in March and April. This is a most interesting time for the bird watcher, as these local migrants often appear on the same date and, over a number of years, dates of appearance will not be found to vary by more than two or three days.

Great numbers of migrating Finches, Larks, Pipits, Wagtails, Swifts, Redstarts, a few species of Eagle and Hen-Harriers, Snipe, Quail and Duck will stop for a short time in the district on their way to swell the winter bird population of the Plains. Huge flocks of Geese and Cranes fly over the district without coming to earth.

During the last thirty years Darjeeling district has altered considerably owing to rapid deforestation and to an increase of cultivated areas. Birds from the Plains such as the House-Crow, the White-breasted Kingfisher, the Blue Jay or Roller are infiltrating up the valleys and changing the character of the Fauna, while Hornbills, Imperial Pigeon and Green Pigeon have almost disappeared from large areas owing to the lack of suitable trees for nesting and feeding.

There is however plenty for the bird lover to study and observe and much still remains to be discovered and recorded to complete a satisfactory account of the birds of the district.

Snakes—Fifty-one species of snakes are found in the district: of these eleven are more or less poisonous, namely 4 Kraits, 2 Cobras, 1 Coral-snake and 4 Vipers. The largest is the King Cobra, or Hamardiyad (*Naia hannah*), with a record length of 15 feet 5 inches; but specimens over 10 feet are rare. This snake is sometimes ferocious and its poison is deadly. The Cobra (*Naia naia*) is found: it measures up to 6 feet 7 inches and its poison is also deadly. The Lesser Black Krait (*Bungarus lividus*) and the Greater Black Krait (*Bungarus niger*) are the commonest of the Kraits: little is known about their poison. Either one, or two, Green Pit Vipers (*Trimeresurus gramineus*) occur and the repulsive looking Large Spotted Viper

(*Trimeresurus monticola*) is common. None of these last are deadly but the painful swelling produced by their venom may last several days.

Fish—Over 125 species of fish have so far been recorded from this area. Some of them are found in torrential streams and are remarkably well adapted for clinging to rocks in swift currents. From a zoogeographical point of view, the fish-fauna is of special interest as the area is a meeting place of the Chinese, Malayan and Indian elements of the fishes of the Oriental Region. Certain specialised hill-stream Chinese and Malayan fishes of this region are not found in the Western Himalayas, but it is remarkable that allied forms, sometimes identical, are found in the Western Ghats and the connected hill ranges of Peninsular India. There is considerable faunistic evidence to show that at some, not very remote, geological period the Eastern Himalayas or the Hills of Assam had a connection with the Western Ghats through the intermediation of the Sutpura trend of mountains which served as a highway for the migration of torrential fishes from this area westwards and southwards.

The chief interest of a visitor to this area, however, lies in the sport that is provided by certain well-known Indian game fishes. All the hill sections of the larger streams and especially the Tista river abound in Mahseer, Katli, Indian Trout and Goonch, generally fished for in clear running streams by means of rod and line. The junctions of smaller streams with the main rivers are usually the most suitable places for angling.

The premier place among Indian game fishes is deservedly occupied by the Mahseer—a popular name for varieties of large-scaled Barbel. In this area there are three varieties: (i) The Golden Himalayan Mahseer [*Barbus (Tor) putitora*], of which the length of the head is considerably greater than the depth of the body, (ii) The Red-finned Mahseer [*Barbus (Tor) tor*], of which the head is shorter than the depth of the body, and (iii) The Copper Mahseer [*Barbus (Tor) mosal*], of which the head is more or less equal to the depth of the body. The first two species attain a notable size. The heaviest fish caught in the Tista scaled 54 and 52 lbs. and were caught by Messrs. Ritchie and Meiklejohn at the junction of the Riyang with the Tista.

The Katli [*Barbus (Lissochilus) Hexagonolepsis*] possesses large scales and in general facies is similar to the Copper Mahseer. As a sporting fish, size for size, there is little to choose between it and the Mahseer. It is, however, a much smaller fish, rarely exceeding 10 lbs. in weight or 2 feet in length. This species is suitable for culture in pond-like depressions or small lakes in the hills and the channels feeding the fish ponds can be so adjusted as to enable the fish to run into them for breeding.

Like the Mahseer and the Katli, the Indian Trout (*Barilius Opsarius bola*) also belongs to the

carp family. Though it runs to 5 lbs. in weight it is usually under 2 lbs. The Indian Trout resembles the true Trout not only in possessing scattered black and occasional red spots on the body, a wide oblique mouth and a graceful form, but also because of its sporting qualities. Several attempts have been made to introduce true Trout in this area but so far it has not been possible to acclimatise them on account of the precipitous courses of the streams and the large amount of silt they carry during the rains. Trout have however, been successfully established in Bhutan and are known to breed there.

The Goonch is not a sporting fish of any value; it lives in Mahseer waters and is often caught on rod and line. It grows to about 6 feet in length and to a weight of about 250 lbs.

Some study has been given to the effect of the effluent from the Mangpu Cinchona factory on fish life in the Rangbee (Rambi) tributary of the Tista. Pollution is most noticeable in March and April when the mouth of the tributary is too shallow for the entry of Mahseer from the Tista. As soon as floods occur pollution is reduced and fry are found in the side of pools. No serious harm to fish therefore results from such pollution as occurs. The following list of common edible fishes of the district has been kindly furnished by the Director of Fisheries, West Bengal:

Local name	Latin name
Bhelda	... <i>Balis badis</i>
Chedra	... <i>Barilius sp.</i>
Khalisa Chuna	... <i>Trichogaster Chuna</i>
Khalisa (Lal)	... <i>Trichogaster fasciatus</i>
Panga	... <i>Acanthopthalmus pangia</i>
Raj Bham	... <i>Anguilla bengalensis</i>
Telchita	... <i>Glyptothorax talchitta</i>
Dani Kona	... <i>Rasbora daniconus</i>
Darangi	... <i>Esomus danricus</i>

The leeches in the district number 6. They are *Dinobdella ferox*, a dark green cattle leech: *Hirudinaria manillensis* a very large species: *Haemadipsa zeylanica montivindicis* the commonest leech: *Haemadipsa montana* found from 5,000 to 9,000 feet: *Haemadipsa sylvestris*: and *Haemadipsa ornata* the stinging land leech, a handsome black and yellow striped species.

The insect fauna is vast. The district is exceedingly rich in lepidoptera, the Tista Valley being famous for the variety found there. Amongst the Swallow-tails there are such beautiful species as *Troides helena carberus*, *Papilio p. Paris*, *Papilio p. Krishna*, *Teinopalyus i. imperialis* is considered a prize and is found in Darjeeling: females of this species are rare. Among the moths, the Atlas moths (*Attacus atlas* and *edwardsi*) attain a span of ten inches or more: two species of *Actias* are

also very beautiful. Dragonflies are well represented and many new species have been discovered of late years, some at very high elevations. *Allogaster latifrons* has been found as high as Tonglu (10,000 feet). There are some very beautiful species with iridescent wings (*Rhinocypha* species and *Neurobasis chinensis*).

Beetles are very numerous: some of the finest are *Euchirus macleaii*, *Chrysochoa bicolor*, and *Chrysochoa chinensis*, the last two being brilliantly coloured. Among the *Orthoptera* is the curious Leaf Insect (*Phyllium scythe*) which even with the legs and the veins of the wings resembles a green leaf.

Amongst the *Rhynchota* are *Eurostus grossipes* and *Belostoma indicum*: the last is a huge water bug: and the cicadas, the song of whose males is known so well while the females are voiceless. Two very fine species are *Cryptotympana corvus* and *Tosena melanoptera*.

Hymenoptera are well represented: one of the finest of these is the very large Hornet (*Vespa magnifica*) which will certainly attack if its nest is disturbed: it has a sting that may prove fatal to man.

Climate—Darjeeling consists of two distinct tracts—the ridges and the deep valleys of the lower Himalayas and the level country at their base. The elevation of the latter is only

about 300 feet above sea-level and the mountains tower abruptly from the plains in spurs in reaching 6 000 to 10,000 feet, many of them densely clothed with forests up to their summits. In a country of such varying topography the climate also varies from place to place. Kalimpong gets about 86 inches of rain whereas Darjeeling receives 126 inches and Kurseong 159 inches. In January the mean maximum temperature is 59°F at Darjeeling. The mean minimum temperature in the month is 46°F at Kalimpong and 35°F at Darjeeling. In Darjeeling temperature below freezing point are experienced every year and in certain years many degrees of frost occur. In summer Darjeeling is delightfully cool the mean maximum during the hottest period being 66°F and the mean minimum 58°F. Thunderstorms are frequent between March and June. Most of the rainfall occur during the Monsoon season, June to September, with appreciable amounts in May and October as well. The rainfall in the remaining months is small. On occasions in association with severe cyclonic storms from the Bay of Bengal moving towards Darjeeling very heavy rain occurs causing extensive flooding and damage to property and loss of life. There have been occasions when in association with such storms, as much as 19 inches of rain has occurred in twenty-four hours. The following climatological table of Darjeeling has been obtained by courtesy of the Director of Meteorology, Poona:

Climatological table of Darjeeling

Station Darjeeling Lat. 27° 03'N. Long. 88° 16'E. Height above M. S. L. 7,432 feet. Based on observations from 1881 to 1940

Month	Pressure		Air Temperature				
	Mean at station level	Mean dry bulb	Mean wet bulb	Mean (of)		Mean (of)	
				Daily Max.	Daily Min.	Highest in the month	Lowest in the month
				°F	°F	°F	°F
January	776.8	41.7	38.7	47.0	35.4	54.2	30.7
February	775.7	41.9	39.1	47.8	36.6	56.2	30.4
March	775.8	49.0	45.4	55.4	43.0	64.5	36.2
April	775.8	55.2	50.9	61.2	48.8	69.1	42.2
May	775.0	57.5	55.7	62.9	52.4	70.3	46.8
June	772.6	60.6	59.0	64.9	56.5	71.1	50.5
July	772.4	61.7	61.0	65.7	58.0	71.9	55.4
August	773.6	61.6	60.6	65.6	57.7	71.8	55.3
September	776.3	60.0	58.7	64.6	56.0	70.8	52.6
October	778.6	56.3	53.6	61.7	50.2	67.8	44.3
November	778.9	50.5	46.0	55.6	43.1	61.1	38.2
December	778.0	44.5	40.0	50.5	36.6	57.0	32.9
Annual Total or Mean	775.8	53.5	50.8	58.6	47.9	72.6	30.2
No. of Years	50	50	50	50	50	50	50

Climatological table of Darjeeling—contd.

Month	Air Temperature					Humidity		Cloud amount			
	Extreme					Relative humidity	Vapour pressure	All clouds	Low clouds		
	Highest recorded	Date and year	Lowest recorded,	Date and year							
	°F		°F		%	mb.	Tenths of sky				
January	I	61	23 1920	26	27 1893	78	7.0	4.3	3.0	
February	I	62	28 1920	23	11 1905	79	7.3	4.8	3.1	
March	I	74	29 1935	31	6 1908	72	8.6	3.8	1.8	
April	I	80	13 1910	34	26 1933	75	11.1	4.9	1.2	
May	I	75	18 1916	42	7 1939	89	14.2	7.0	4.9	
June	I	80	20 1902	47	1 1938	96	17.0	8.6	4.3	
July	I	77	30 1919	45	17 1933	96	17.9	8.9	5.4	
August	I	77	25 1919	52	22 1933	95	17.7	8.8	4.6	
September	I	80	4 1900	50	30 1940	93	16.4	8.0	5.0	
October	I	74	3 1938	40	31 1913	84	13.1	5.4	3.0	
November	I	67	7 1915	31	29 1896	72	9.2	3.6	2.6	
December	I	63	8 1904	29	31 1905	69	6.9	3.2	1.7	
Annual Total or Mean			I	80	..	23	..	83	12.2	5.9	3.4
No. of Years			I	50	..	50	..	50	50	50	..

Month	Rainfall							Mean wind speed
	Mean monthly total	Mean No. of rainy days	Total in wettest month with year	Total in driest month with year	Heaviest fall in 24 hours	Date and year		
	in.		in.	in.	in.		m.p.h.	
January	. . . . . I	0.53	1.2	3.05 1899	0	1.50	31 1889	2.6
February	. . . . . I	1.19	2.6	3.82 1940	0	1.69	20 1940	4.1
March	. . . . . I	1.88	3.6	5.63 1918	0	2.84	29 1936	5.0
April	. . . . . I	4.14	7.5	11.24 1925	0.42 1939	5.32	18 1916	5.7
May	. . . . . I	9.63	14.4	19.59 1887	2.97 1929	9.17	27 1887	4.8
June	. . . . . I	24.18	21.0	48.48 1913	8.53 1888	9.65	26 1918	3.9
July	. . . . . I	32.92	25.6	58.26 1890	15.50 1903	7.67	20 1924	3.5
August	. . . . . I	26.56	23.7	40.25 1905	14.15 1920	9.35	8 1915	3.4
September	. . . . . I	18.90	17.0	46.84 1902	5.61 1891	19.40	25 1899	3.2
October	. . . . . I	5.41	4.8	35.95 1929	0	13.17	20 1929	2.6
November	. . . . . I	0.81	1.2	14.68 1912	0	8.65	2 1912	2.0
December	. . . . . I	0.27	0.7	2.52 1913	0	1.23	19 1885	1.9
Annual Total or Mean	. . . . . I	126.42	123.3	158.44 1890	89.42 1907	19.40	..	3.6
No. of Years	. . . . . I	60	60	60	60	60	..	60

Climatological table of Darjeeling—contd.

Month	Weather Phenomena*					
	No. of days with					
	Precipitation ·01" or more	Thunder	Hail	Dust-storm	Squall	Fog
January I	2	0·4	0·3	0	0	5
February I	7	0·1	0·4	0	0	6
March I	8	4	1·0	0	0	5
April I	13	7	1·1	0·3	0	1·9
May I	22	7	1·4	0·1	0	11
June I	27	3	0·1	0	0·3	19
July I	29	1·6	0	0	0	21
August I	27	1·6	0	0	0	22
September I	23	1·5	0	0	0	16
October I	6	0·3	0	0	0	3
November I	2	0·1	0	0	0	3
December I	1·1	0·1	0	0	0	2
Annual Total or Mean . I	167	27	4	0·4	0·3	115
No. of Years I	10	10	10	10	10	10

*Frequencies above 2·0 are given only in whole numbers.

Month	Wind												
	No. of days with wind force				Percentage number of days of wind from								
	8 or more	4-7	1-3	0	N	NE	E	SE	S	SW	W	NW	Calm
January I	0	0	24	7	4	7	9	4	1	2	6	1	66
February I	0	0	22	6	4	7	7	3	2	3	12	2	61
March I	0	1	23	7	5	8	6	3	2	5	12	2	57
April I	0	0	24	6	4	7	6	2	1	4	13	3	61
May I	0	0	25	6	3	5	4	3	0	5	15	3	61
June I	0	1	25	4	3	6	7	5	1	2	13	3	60
July I	0	0	28	3	3	8	9	4	1	1	5	2	68
August I	0	1	24	6	4	8	8	3	0	1	5	2	69
September I	0	1	24	5	3	5	4	1	0	2	6	2	77
October I	0	1	26	4	4	9	5	3	0	1	4	2	72
November I	0	1	24	5	3	10	9	4	1	1	3	2	67
December I	0	0	25	6	3	8	12	3	1	2	3	2	65
Annual Total or Mean . I	0	6	294	65	4	7	7	3	1	2	8	2	66
No. of Years I	5				20								

Climatological table of Darjeeling—concl'd.

Month			Cloud									
			No. of days with cloud amount (all clouds)					No. of days with low cloud amount				
			0	T-3	4-6	7-9	10 over-cast	0	T-3	4-6	7-9	10 Fog 10
January	.	I	4	10	9	5	3	6	11	8	3	1 2
February	.	I	1	9	6	7	5	3	10	8	4	1 2
March	.	I	4	13	5	4	5	12	12	2	1	1 3
April	.	I	3	13	8	5	1	15	12	1	1	1 0
May	.	I	0	6	3	11	11	2	12	2	6	2 7
June	.	I	0	2	2	7	19	0	4	2	3	11 10
July	.	I	0	0	1	5	25	0	2	2	2	9 16
August	.	I	0	1	2	7	21	0	5	2	8	8 8
September	.	I	0	3	4	13	10	0	9	3	5	1 12
October	.	I	3	11	5	7	5	5	13	6	3	1 3
November	.	I	4	14	3	8	1	7	14	3	5	0 1
December	.	I	7	13	3	6	2	12	13	2	3	0 1
Annual Total or Mean	I		26	95	51	85	108	62	117	41	44	36 65
No. of Years	I		5					5				

Month			Visibility*				
			No. of days with visibility				
			Up to 1,100 yds.	1,100 yds. to 2·5 miles	2·5 to 6·25 miles	6·25 to 12·5 miles	Over 12·5 miles
January	.	I	5	6	5	6	9
February	.	I	5	7	5	5	6
March	.	I	3	6	6	8	8
April	.	I	4	5	5	5	11
May	.	I	13	5	4	3	6
June	.	I	21	4	1·4	1·1	3
July	.	I	23	3	1·3	1·3	2
August	.	I	22	3	1·1	1·9	3
September	.	I	15	4	3	3	5
October	.	I	6	4	3	4	14
November	.	I	5	3	3	3	16
December	.	I	3	4	3	5	16
Annual Total or Mean	I		125	54	41	46	99
No. of Years	I		8				

*Frequencies above 2·0 are given only in whole numbers.

The following table, obtained by courtesy of the Conservator General of Forests, West Bengal, gives the average, monthly and annual rainfall

during the past ten years (1941-2 to 1951-2) in twenty widely separated localities in Darjeeling subdivision:

Average, monthly and annual rainfall during the past ten years (1941-2 to 1951-2) in Darjeeling (Sadar subdivision)

Locality	January	February	March	April	May	June	July
Sukiapokhri	·592	·983	2·632	12·207	10·145	21·855	28·262
Mangpoo	·58	1·47	3·08	7·64	9·1	29·39	31·22
Ramam	·45	1·45	2·34	6·18	7·76	16·43	25·22
Batasi	·86	1·84	3·12	10·77	9·82	25·06	32·96
Singtom Tea Estate	·49	·96	2·43	4·4	5·39	16·66	25·79
Jhamong Tea Estate	·72	1·85	3·66	8·21	10·02	19·65	26·11
Lebong Tea Estate	·42	·94	1·53	3·35	4·18	12·74	18·38
Tista Valley Tea Co.	·51	1·19	2·53	5·64	7·30	23·86	31·57
Mineral Spring Tea Estate	·31	·26	3·01	4·73	4·93	18·81	29·99
Glenburn Tea Estate	·39	·91	1·66	3·55	4·21	14·35	21·93
Rangit Tea Estate	·25	1·29	2·82	4·85	6·44	20·67	31·28
Rangli-Rangliot Tea Estate	·52	1·16	2·59	6·05	8·36	25·32	31·55
Rangirum Tea Estate	·41	1·58	3·74	8·16	10·94	23·78	39·20
Pumong Tea Estate	·40	·90	2·80	6·20	9·70	25·80	34·60
Mumring Tea Estate	·48	1·48	2·52	6·10	8·34	26·99	34·68
Tomsong Tea Estate	·67	1·2	2·42	6·18	7·43	20·37	32·28
Oaks Tea Estate	·38	1·26	2·77	7·18	10·26	22·15	29·52
Poobong Tea Estate	·99	1·8	4·16	10·16	12·56	23·97	29·79
Selimbong Tea Estate	1·09	1·7	2·87	5·82	9·6	19·47	23·57
Lopchu Tea Estate	·344	1·28	2·05	4·4	5·24	19·43	26·69
	August	September	October	November	December	Total	Reading obtained from
Sukiapokhri	21·592	16·032	3·58	·271	·004	118·155	Sukiapokhri
Mungpoo	24·49	16·07	3·67	·71	·065	127·485	Mungpoo
Ramam	19·19	12·39	1·26	·23	·06	92·96	Ramam
Batasi	25·98	20·19	4·77	·82	·17	136·36	Batasi
Singtom Tea Estate	20·14	14·15	3·34	·62	·12	94·49	
Jhamong Tea Estate	23·27	16·93	3·36	·51	·24	114·53	
Lebong Tea Estate	13·68	10·96	2·82	·30	·11	69·41	Lebong
Tista Valley Tea Estate	23·22	16·69	3·82	·68	·07	117·08	Tista-Valley
Mineral Spring Tea Estate	21·50	15·27	3·43	·39	·05	102·68	
Glenburn Tea Estate	15·27	12·15	2·77	·38	·07	77·64	
Rangit Tea Estate	25·82	17·84	5·59	·89	·21	117·95	
Rangli-Rangliot Tea Estate	24·61	18·51	4·14	·72	·10	123·63	
Rangirum Tea Estate	29·08	17·96	4·29	·65	·14	139·93	Rangirum
Pumong Tea Estate	25·90	20·70	4·18	·30	·11	131·59	
Mumring Tea Estate	26·80	20·50	4·41	·42	·09	132·81	
Tomsong Tea Estate	24·51	16·54	3·47	·43	·07	115·57	Tomsong
Oaks Tea Estate	23·35	16·79	3·19	·7	·16	117·71	
Poobong Tea Estate	24·37	20·01	3·47	·75	·24	132·27	
Selimbong Tea Estate	20·09	15·86	3·29	·64	·50	104·50	
Lopchu Tea Estate	19·69	15·60	3·3	·5	·25	98·774	Lopchu

In June 1950 there was an abnormally heavy rainfall which caused serious disasters in the

district. The total rainfall figures from the 9th to the 14th June 1950 of 15 localities are given below :

Total rainfall figures from 9th to 14th June 1950 in Darjeeling

Locality	Total rainfall from the 9th to the 14th June, 1950, (in inches)	Remarks
Chamong Tea Estate	20.49	Maximum fall 9.20" on 11-6-50
Lobong and Mineral Spring Tea Estate	38.56	" " 16.96" " "
Lobong Tea Co., Ltd.	25.66	" " 12.36" " 12-6-50
Nurning Tea Estate	33.22	" " 16.41" " "
Pumong Tea Estate	31.97	" " 15.10" " "
Rangli-Rangliot Tea Estate	45.74	" " 21.16" " 11-6-50
Oaks Tea Estate	17.35	" " 5.35" " 13-6-50
Singtom Tea Estate	27.69	" " 12.36" " 11-6-50
Government Cinchona Plantation, Mungpoo	41.22	" " 18.40" " 12-6-50
Sukiapokhri	17.83	" " 9.27" " "
Batasi	32.50	" " 13.50" " "
Ramam	13.97	" " 5.60" " 11-6-50
Phalut	10.93	" " 4.31" " 12-6-50
Sandakphu	16.45	" " 4.16" " "
Tonglu	32.52	" " 14.36" " "

THE PEOPLE

Writing in 1854 in his *Himalayan Journals* Joseph Hooker said that there were not a hundred inhabitants under British protection when Darjeeling was first transferred, but that, during the two years in which he witnessed its development, its progress resembled that of an Australian colony not only in the amount of building, but also in the accession of native families from the surrounding countries. He was referring to the hills portion of the district excluding Kalimpong, which was then part of Bhutan.

When the East India Company in 1835 first acquired the nucleus of the Darjeeling district from the Raja of Sikkim, it was almost entirely under forest and practically uninhabited. Although it was stated to have been uninhabited probably a more accurate estimate was that this hill tract of 138 square miles contained a population of 100. The heavy forest and poor communications must have kept down numbers to those who could make a precarious living from rough cultivation of forest lands and the collection of forest fruits. A primitive system of Government which countenanced slavery did nothing to encourage development and an increase of population.

The decision of the Company to develop Darjeeling as a hill resort gave an opportunity to neighbouring peoples to immigrate and take part in the development. The original inhabitants, probably

Lepchas, were rapidly outnumbered by settlers from Nepal and Sikkim. By the year 1850, Dr Campbell, the first Superintendent, reported that the number of inhabitants had risen to 10,000. The rapid influx was noted by Sir Joseph Hooker when he visited Darjeeling about that time. When in 1869 a rough census was taken of the inhabitants of this tract, the total was found to be over 22,000.

Previous to 1860 there had been some fighting with the Sikkim Raja, which was followed by annexations of territory. In the hills an area was added to the Darjeeling tract mentioned above which brought the boundaries to the Nepal frontier on the west and the Tista river on the East. The Terai was also added. It is not clear what was then the population of the Terai but it can be assumed that it was considerable from the fact that, in 1874, it was reported that at the time of annexation there were 544 *jotes* which brought in a revenue of Rs. 19,000. The census of 1872 showed the total population of the Terai to be 47,985.

The Kalimpong subdivision of the district was annexed after the Bhutan War of 1865. The population of this area then was estimated to be 3,536. As the area was treated as part of the headquarters subdivision of the district, early census records gave no figures for this area but an estimate of the population of the Kalimpong area in the year 1881 was 12,683. Immigration was considerable between annexation and 1881.

Astonishingly enough as early as 1794 H. T. Colebrooke had pleaded for tea and coffee plantations in Bengal predicting their success (see *Remarks on the Husbandry and Commerce of Bengal*, reprinted as an appendix in Part IC of Volume VI of Census of India, 1951). The first trial of the tea plant at Darjeeling was made in 1841, according to a A. Campbell, with a few seeds grown in Kumaon from China stock. It was quite successful, and the quality was approved by the Assam tea planter who visited Darjeeling in 1846, and made the first tea here. Although experiments continued to be made on the growth of the tea plant, and seed from Assam and Kumaon was distributed gratuitously by Government, it was not till 1856 that the first plantation was started at Kurseong, and another near Darjeeling, by Captain Samler, who was also the first to try coffee. The success in both cases was complete and others followed in the same path. By 1861 on the eve of

the International Exhibition in London of 1862, 22 tea estates had sprung up. They had received a total grant of 21,865 acres, of which 3,251 were under tea, and already, 4,303,000 tea plants had been planted, 42,600 lbs. of tea and 20,000 lbs. of coffee manufactured and 2,534 labourers employed. In 1871 the number of tea estates, public and private, was 62, with an area of 12,305 acres planted with tea. In 1881, the number of these estates had risen to 155, and the acreage under tea had advanced to 28,367 acres. In 1891 there were 177 registered gardens with 45,585 acres under tea and 242 square miles comprised in tea estates. From this time onwards tea estates were more and more organised under big limited concerns so that although the area under tea expanded the number of separate gardens decreased. The following statement shows the progress of tea in Darjeeling district between 1861 and 1951.

Statistics of tea in Darjeeling, 1861—1951

Year	No. of tea gardens	Total area in acres under tea	Approximate yield in lbs.	Average yield in lbs. per acre of mature plants	Number of labourers employed		
					Permanent	Temporary	Total
1	2	3	4	5	6	7	8
1861 . . .	22	3,251	42,600	..	..	..	2,534
1881 . . .	155	28,367	5,160,316	238	..	..	..
1891 . . .	177	45,585	10,910,487	277	..	..	..
1901 . . .	170	51,724	13,535,537	276	24,257	16,194	40,451
1911 . . .	156	51,488	14,250,615	284	26,510	13,051	39,561
1921 . . .	168	59,005	14,080,946	252	45,977	2,733	48,710
1931 . . .	169	61,178	20,496,481	345	61,572	2,093	63,665
1941 . . .	136	63,173	24,815,216	400	67,838	1,861	69,699
1951 . . .	138	62,580	29,283,499	468	..	..	69,590

Source :—Administration of Bengal and Indian Tea Statistics.

The statement shows how rapidly tea gardens improved in yield per acre and total production. It indicates that the total number of labourers, unless the acreage under tea were vastly expanded, for which there is little scope, is likely to fluctuate between 65,000 and 75,000. It also shows how the total area under tea has been more or less constant since 1921, and how temporary labour has decreased as a result of which tea garden labour in Darjeeling has stabilised and, as bearing out an observation already made, settled in family patterns.

To return from this digression, Kalimpong was annexed from Bhutan in 1865 and in 1891 was a vast Government estate, consisting mainly of forests. In that year it contained only two tea gardens and two cinchona plantations, the remainder being divided in agricultural plots among

settlers from Nepal, Sikkim and Bhutan, as well as amongst the original Lepcha inhabitants. While tea flourished in the hills, in the *terai* or plain at the foot of the hills ordinary cultivation was carried on by Rajbansis with an admixture of Muslims and other castes. Reclamation of land went on steadily but even in 1891 about 45 per cent. of the land was uncultivated.

The Census of 1872 was considered defective. There was an immense concealment of females in 1881. Many of them fled on the census night over the frontier into Nepal. Labourers absconded from tea gardens from panic and other causes. It was believed that the Census of 1891 for the first time took a satisfactory count. During 1891-1901 the hills were very healthy. On the other hand, the *terai* was notoriously malarious and mortality was very heavy. The Siliguri-Darjeeling railway

line was opened in 1880-1. The tea industry on which the growth of the district mainly depended, passed through a serious crisis. Prices fell greatly between 1896 and 1901 and many gardens were no longer able to work at a profit. A few gardens closed and others reduced their labour force, so that the increase due to extension of cultivation during the earlier years of the decade was to a great extent discounted by subsequent reduction of establishment. The increase of population was greatest in Kalimpong, where the waste land was rapidly brought under cultivation by new settlers, chiefly from Nepal. Already during 1901-11 the the population showed a decline in the rate of

increase. L. S. S. O'Malley in his Census Report of 1911 observed:

The explanation is that there is only a limited area in which there is room for an increase in population. Over one-third of the district is covered by reserved forests, while the tea gardens extend over about one-seventh of its area. While they were being opened out and developed, labour poured in and a phenomenal growth of population resulted. Now all the land suitable for tea cultivation, within the area reserved for it, has been taken up. On the tea gardens therefore no considerable increase of population can be expected. As it is, tea occupies a third of the cropped area, and the tea gardens employ a labour force of 53,000, or one-fifth of the total population of the district. As regards ordinary cultivation only one-third of the district is cultivable, and it cannot therefore hope to support a teeming agricultural population. Even in Kalimpong, where nearly half the land is reserved for native cultivation, it is recognised that it has reached the limit of safety in some parts, and in such localities it has been found necessary to prohibit further extension.

Percentage variations in population, 1872—1951

	1901-51	1921-51	1872-1921	1941-51	1931-41	1921-31	1911-21	1901-11	1891-1901	1881-91	1872-81
DARJEELING DISTRICT	+78.7	+57.5	+198.5	+18.3	+17.7	+13.0	+6.5	+6.6	+11.6	+43.9	+63.8
<i>Sadar Subdivision</i>	.. +84.5	+59.3	+300.6	+15.1	+23.6	+11.9	+3.8	+11.6	+16.3	+51.1	+96.8
Darjeeling	.. +86.9	+61.3	+300.5	+29.6	+10.5	+12.6	+3.8	+11.6	+16.3	+51.1	+96.7
Jore Bungalow	.. +87.1	+61.5	+300.6	-9.7	+51.9	+17.7	+3.8	+11.6	+16.3	+51.1	+96.8
Pulbazar	.. +91.5	+65.3	+300.6	+26.3	+18.4	+10.6	+3.8	+11.6	+16.3	+51.1	+96.8
Sukhiapokri	.. +98.0	+71.0	+300.5	+5.7	+28.5	+25.9	+3.8	+11.5	+16.3	+51.1	+96.8
Rangli Rangilot	.. +65.9	+43.2	+300.5	+16.0	+23.9	-0.3	+3.8	+11.6	+16.3	+51.1	+96.7
<i>Kurseong Subdivision</i>	+45.4	+62.8	+194.8	+9.5	+15.4	+28.8	-2.1	-8.8	+1.2	+65.7	+96.8
Kurseong	.. +51.4	+69.5	+194.8	+15.5	+13.9	+28.8	-2.1	-8.8	+1.2	+65.7	+96.8
Mirik	.. +29.8	+45.3	+194.7	-5.4	+19.3	+28.8	-2.1	-8.8	+1.2	+65.7	+96.8
<i>Siliguri Subdivision</i>	+65.3	+53.7	+57.9	+29.4	+12.2	+5.9	+4.9	+2.5	-3.5	+15.4	+31.8
Siliguri	.. +116.4	+101.2	+57.9	+61.2	+17.8	+6.0	+4.9	+2.5	-3.5	+15.4	+31.8
Kharibari	.. +22.5	+13.9	+57.9	+2.7	+4.6	+6.0	+4.9	+2.5	-3.5	+15.4	+31.8
Phansidewa	.. +25.3	+16.5	+57.9	-0.5	+10.8	+5.7	+4.9	+2.5	-3.5	+15.4	+31.8
<i>Kalimpong Sub-division</i>	.. +125.1	+55.5	+832.3	+18.2	+15.9	+13.5	+21.4	+19.3	+55.9	+110.0	+96.8
Kalimpong	.. +123.3	+54.3	+832.2	+19.6	+16.5	+10.6	+21.3	+19.3	+55.9	+110.0	+96.7
Garubathan	.. +133.4	+61.2	+832.6	+12.2	+13.3	+26.9	+21.4	+19.3	+55.9	+110.0	+96.8

The net result in 1901-11 was a progressive decrease in the rate of increase and a shrinkage of the volume of immigration. The statement pre-page showing changes in the growth of population of Darjeeling registers a decrease almost everywhere except in Kalimpong subdivision. Between 1872 and 1921 the district experienced phenomenal growth, but between 1901-51 the happy period of expansion and carefree production in an expanding market was over and the rate of growth during this period 1901-51 was very much less than half of the period 1872-1921. Nevertheless growth between 1921 and 1951 has not been disappointing at all, the areas of specially rapid growth having been Pulbazar, Kurseong and Siliguri police stations: Pulbazar saw a great increase in agriculture, Kurseong in tea and as a railway and residential town, and Siliguri for its growing importance as the biggest railway and road terminus in Northern Bengal. During 1911-21 the

influenza epidemic caused great mortality in the hills and hung about longer than in the plains, probably because the greater distance and the less frequent intercourse between one collection of homesteads and the next caused infection to spread less rapidly. There were also local epidemics of relapsing fever. The *terai* and Kalimpong were opened up by the Siliguri-Kissenganj and the Siliguri-Giellakhola railways in 1914-5. During 1921-31 there was less immigration from Nepal. Siliguri police station improved as a consequence of the extension of the broad-gauge railway to the town. There was considerable immigration from Bihar in the *terai* and Kurseong improved because of tea. During 1931-41 there was a severe earthquake in January 1934 when a large number of old buildings in Darjeeling town and Tindharia collapsed. In 1935 there was heavy flood in the Mechi.

Immigration and emigration in Darjeeling from and outside the State, 1891—1951

	1891	1901	1911	1921	1931	1941	1951
Actual population	223,314	249,117	265,550	282,748	319,635	376,369	445,260
Immigration	119,670	113,588	111,269	101,807	100,700	95,750	100,311
Emigration	962	802	6,000	6,000	3,455	4,120	6,900
Natural population	104,606	136,331	160,281	186,941	222,390	284,730	351,849
Percentage variation . . . . .	..	+30.3	+17.6	+16.6	+19.0	+28.0	+23.6

The figure for 1951 includes 15,738 Displaced persons. The statement is interesting inasmuch as it shows how the immigrant population is being gradually substituted by their children born in Darjeeling. Nevertheless, the fact remains that there must be a great deal of intercourse still between Nepal, Sikkim, Tibet and Bhutan on the

one hand and Darjeeling on the other. The emigrant population has been fairly constant representing those Indians who were born in the district whose parents were on pleasure tour, business and service. The above statement does not include 3,315 Muslims, who according to the West Bengal Government left the State for Pakistan of whom 1,385 later returned.

Migration between Darjeeling and other districts of Bengal in 1891—1921 and West Bengal in 1951

Year	Immigration				Emigration			
	From contiguous districts		From other districts		To contiguous districts		To other districts	
	M	F	M	F	M	F	M	F
1891	8,368	6,640	1,688	691	1,674	1,124	338	131
1901	8,455	6,757	16,172	9,872	2,147	1,995	486	264
1911	2,000	1,000	2,000	1,000	1,000	2,000	600	400
1921	2,000	1,000	3,000	2,000	2,000	1,000	1,000	1,000
1951	2,032	935	2,256	1,565	2,990	2,547	4,361	2,747

The statement prepage illustrates what a small proportion migration between Darjeeling and other districts of the State bears to migration from and outside the State. The large immigration figures of 1891 and 1901 were due, as already noted, to the filling up of the agricultural areas in the *terai* by immigration from Dinajpur, Rangpur and Jalpaiguri. This is perhaps the only district where immigration and emigration from and to other districts have remained at a low level since 1911 and where the Partition has made little difference in their volumes. The two statements indicate that population in the district is well near saturation

point, both in tea and agriculture, that migration has taken place more or less on the basis of the family as the unit, and that the industrial population in tea is fairly settled in their place of work. The comparative paucity of strikes and industrial discontent in the district due in part to lack of labour organisation and very low living standards also bears out the above observation.

The following statement shows the variation in population of the subdivisions and police stations of Darjeeling district between 1872 and 1951:

Population of administrative divisions of Darjeeling district with variations, 1872—1951

District, Subdivision and Police Station	Population 1951	Variation 1941-51	Population 1941	Variation 1931-41	Population 1931	Variation 1921-31
1	2	3	4	5	6	7
Darjeeling District	445,260	+ 38,891	376,369	+ 56,734	319,635	+ 36,887
<i>Sadar Subdivision</i>	<i>169,631</i>	<i>+ 22,304</i>	<i>147,327</i>	<i>+ 28,149</i>	<i>119,178</i>	<i>+ 12,667</i>
Darjeeling	63,171	+ 14,438	48,733	+ 4,637	44,096	+ 4,936
Jore Bungalow	28,944	— 3,098	32,042	+ 10,952	21,090	+ 3,168
Pulbazar	26,929	+ 5,009	21,320	+ 3,310	18,010	+ 1,721
Sukhiapokri	19,258	+ 1,041	18,217	+ 4,038	14,179	+ 2,916
Rangli Rangliot	31,329	+ 4,314	27,015	+ 5,212	21,803	— 74
<i>Kurseong Subdivision</i>	<i>65,713</i>	<i>+ 5,727</i>	<i>59,986</i>	<i>+ 7,990</i>	<i>51,996</i>	<i>+ 11,639</i>
Kurseong	49,577	+ 6,657	42,920	+ 5,231	37,689	+ 8,436
Mirik	16,136	— 930	17,066	+ 2,759	14,307	+ 3,203
<i>Siliguri Subdivision</i>	<i>116,475</i>	<i>+ 26,461</i>	<i>90,014</i>	<i>+ 9,756</i>	<i>80,258</i>	<i>+ 4,471</i>
Siliguri	68,280	+ 25,917	42,363	+ 6,395	35,968	+ 2,029
Kharibari	24,876	+ 660	24,216	+ 1,071	23,145	+ 1,306
Phansidewa	23,319	— 116	23,435	+ 2,290	21,145	+ 1,136
<i>Kalimpong Subdivision</i>	<i>93,441</i>	<i>+ 14,399</i>	<i>79,042</i>	<i>+ 10,839</i>	<i>68,203</i>	<i>+ 8,110</i>
Kalimpong	76,463	+ 12,556	63,907	+ 9,066	54,841	+ 5,277
Garubathan	16,978	+ 1,843	15,135	+ 1,773	13,362	+ 2,833

Population of administrative divisions of Darjeeling district with variations, 1872—1951—concl'd.

District, Subdivision and Police Station	Population 1921	Variation 1911-21	Population 1911	Variation 1901-11	Population 1901	Variation 1891-1901
	8	9	10	11	12	13
Darjeeling District	282,784	+17,198	265,550	+16,433	249,117	+25,803
<i>Sadar Subdivision</i>	<i>106,511</i>	<i>+3,934</i>	<i>102,577</i>	<i>+10,624</i>	<i>91,953</i>	<i>+12,912</i>
Darjeeling	39,160	+1,446	37,714	+3,906	33,808	+4,747
Jore Bungalow	17,922	+602	17,260	+1,788	15,472	+2,173
Pulbazar	16,289	+602	15,687	+1,625	14,062	+1,975
Sukhiapokri	11,263	+416	10,847	+1,123	9,724	+1,365
Rangli Rangliot	21,877	+808	21,069	+2,182	18,887	+2,652
<i>Kurseong Subdivision</i>	<i>40,357</i>	<i>-850</i>	<i>41,207</i>	<i>-3,980</i>	<i>45,187</i>	<i>+542</i>
Kurseong	29,253	-616	29,869	-2,885	32,754	-1,393
Mirik	11,104	-234	11,338	-1,095	12,433	-1,149
<i>Siliguri Subdivision</i>	<i>75,787</i>	<i>+3,541</i>	<i>72,246</i>	<i>+1,780</i>	<i>70,466</i>	<i>-2,531</i>
Siliguri	33,939	+1,586	32,353	+797	31,556	-1,134
Kharibari	21,839	+1,020	20,819	+513	20,306	-729
Phansidewa	20,009	+935	19,074	+470	18,604	-608
<i>Kalimpong Subdivision</i>	<i>60,093</i>	<i>+10,573</i>	<i>49,520</i>	<i>+8,009</i>	<i>41,511</i>	<i>+14,880</i>
Kalimpong	49,564	+8,720	40,844	+6,606	34,238	+12,273
Garubathan	10,529	+1,853	8,676	+1,403	7,273	+2,607
	Population 1891	Variation 1881-91	Population 1881	Variation 1872-81	Population 1872	
	14	15	16	17	18	
Darjeeling District	223,314	+68,135	155,179	+60,467	94,412	
<i>Sadar Subdivision</i>	<i>79,041</i>	<i>+26,723</i>	<i>52,318</i>	<i>+25,727</i>	<i>26,591</i>	
Darjeeling	29,061	+9,825	19,236	+9,459	9,777	
Jore Bungalow	13,299	+4,496	8,803	+4,329	4,474	
Pulbazar	12,087	+4,087	8,000	+3,934	4,066	
Sukhiapokri	8,359	+2,826	5,533	+2,721	2,812	
Rangli Rangliot	16,235	+5,489	10,746	+5,284	5,462	
<i>Kurseong Subdivision</i>	<i>44,645</i>	<i>+17,708</i>	<i>26,937</i>	<i>+13,247</i>	<i>13,690</i>	
Kurseong	32,361	+12,836	19,525	+9,602	9,923	
Mirik	12,284	+4,872	7,412	+3,645	3,767	
<i>Siliguri Subdivision</i>	<i>72,997</i>	<i>+9,756</i>	<i>63,241</i>	<i>+15,256</i>	<i>47,985</i>	
Siliguri	32,690	+4,369	28,321	+6,832	21,489	
Kharibari	21,035	+2,811	18,224	+4,396	13,828	
Phansidewa	19,272	+2,576	16,696	+4,028	12,668	
<i>Kalimpong Subdivision</i>	<i>26,631</i>	<i>+13,948</i>	<i>12,683</i>	<i>+6,237</i>	<i>6,446</i>	
Kalimpong	21,965	+11,504	10,461	+5,144	5,317	
Garubathan	4,666	+2,444	2,222	+1,093	1,129	

The following statement shows the variation on prepage as percentage of the previous decade or group of decades ;

Percentage variation in population of Darjeeling from decade to decade, 1872—1951

	Percentage Variation										
	1901-51	1921-51	1872-1921	1941-51	1931-41	1921-31	1911-21	1901-11	1891-1901	1881-91	1872-81
DARJEELING DISTRICT	+ 78.7	+ 57.5	+ 198.5	+ 18.3	+ 17.7	+ 13.0	+ 6.5	+ 6.6	+ 11.6	+ 43.0	+ 63.8
<i>Sadar Subdivision</i>	+ 84.5	+ 59.3	+ 300.6	+ 15.1	+ 23.6	+ 11.9	+ 3.8	+ 11.6	+ 16.3	+ 51.1	+ 96.8
Darjeeling	+ 86.9	+ 61.3	+ 300.5	+ 29.6	+ 10.5	+ 12.6	+ 3.8	+ 11.6	+ 16.3	+ 51.1	+ 96.7
Jore Bungalow	+ 87.1	+ 61.5	+ 300.6	— 9.7	+ 51.9	+ 17.7	+ 3.8	+ 11.6	+ 16.3	+ 51.1	+ 96.8
Pulbazar	+ 91.5	+ 65.3	+ 300.6	+ 26.3	+ 18.4	+ 10.6	+ 3.8	+ 11.6	+ 16.3	+ 51.1	+ 96.8
Sukhiapokri	+ 98.0	+ 71.0	+ 300.5	+ 5.7	+ 28.5	+ 25.9	+ 3.8	+ 11.5	+ 16.3	+ 51.1	+ 96.8
Rangli Rangliot	+ 65.9	+ 43.2	+ 300.5	+ 16.0	+ 23.9	— 0.3	+ 3.8	+ 11.6	+ 16.3	+ 51.1	+ 96.7
<i>Kurseong Subdivision</i>	+ 45.4	+ 62.8	+ 194.8	+ 9.5	+ 15.4	+ 28.8	— 2.1	— 8.8	+ 1.2	+ 65.7	+ 96.8
Kurseong	+ 51.4	+ 69.5	+ 194.8	+ 15.5	+ 13.9	+ 28.8	— 2.1	— 8.8	+ 1.2	+ 65.7	+ 96.8
Mirik	+ 29.8	+ 45.3	+ 194.7	— 5.4	+ 19.3	+ 28.8	— 2.1	— 8.8	+ 1.2	+ 65.7	+ 96.8
<i>Siliguri Subdivision</i>	+ 65.3	+ 53.7	+ 57.9	+ 29.4	+ 12.2	+ 5.9	+ 4.9	+ 2.5	— 3.5	+ 15.4	+ 31.8
Siliguri	+ 116.4	+ 101.2	+ 57.9	+ 61.2	+ 17.8	+ 6.0	+ 4.9	+ 2.5	— 3.5	+ 15.4	+ 31.8
Kharibari	+ 22.5	+ 13.9	+ 57.9	+ 2.7	+ 4.6	+ 6.0	+ 4.9	+ 2.5	— 3.5	+ 15.4	+ 31.8
Phansidewa	+ 25.3	+ 16.5	+ 57.9	— 0.5	+ 10.8	+ 5.7	+ 4.9	+ 2.5	— 3.5	+ 15.4	+ 31.8
<i>Kalimpong Subdivision</i>	+ 125.1	+ 55.5	+ 832.3	+ 18.2	+ 15.9	+ 13.5	+ 21.4	+ 19.3	+ 55.9	+ 110.0	+ 96.8
Kalimpong	+ 123.3	+ 54.3	+ 832.2	+ 19.6	+ 16.5	+ 10.6	+ 21.3	+ 19.3	+ 55.9	+ 110.0	+ 96.7
Garubathan	+ 133.4	+ 61.2	+ 832.6	+ 12.2	+ 13.3	+ 26.9	+ 21.4	+ 19.3	+ 55.9	+ 110.0	+ 96.8

The following table shows the changes in the General, Rural and Urban densities of the district between 1901 and 1951 :

Changes in density (persons per square mile), 1901—1951

	1951	1941	1931	1921	1911	1901
Total	371	314	266	236	221	208
Rural	296	268	233	214	203	192
Urban	7,381	4,544	3,307	2,242	1,920	1,671

The following table gives the changes in the density of subdivisions and police stations between 1872 and 1951 :

Variations in density (persons per square mile), 1872—1951

	1951	1941	1931	1921	1911	1901	1891	1881	1872
DARJEELING DISTRICT	371	314	266	236	221	208	186	129	79
<i>Sadar Subdivision</i>	470	408	330	295	284	255	219	149	74
Darjeeling	1,564	1,206	1,091	969	934	837	719	476	242
Jore Bungalow	513	568	374	318	306	274	236	156	79
Pulbazar	508	402	340	307	296	265	228	161	77
Sukhiapokri	208	197	153	122	117	105	90	60	30
Rangli Rangliot	264	227	184	184	177	159	137	90	46
<i>Kurseong Subdivision</i>	400	365	317	246	251	275	272	164	83
Kurseong	392	339	298	231	236	259	256	154	78
Mirik	429	454	381	295	302	331	327	197	100
<i>Siliguri Subdivision</i>	437	338	301	284	271	265	274	237	180
Siliguri	549	341	289	273	260	254	263	228	173
Kharibari	317	309	295	279	266	259	268	232	176
Phansidewa	367	368	332	315	300	293	303	263	199
<i>Kalimpong Subdivision</i>	229	194	167	147	121	102	65	37	16
Kalimpong	325	271	233	211	174	145	93	44	23
Garubathan	98	88	77	61	50	42	27	19	7

The population of the urban area of Darjeeling district is subject to considerable seasonal variation. The most favourite summer resort of Eastern India, Darjeeling receives large number of visitors in the towns of Darjeeling, Kurseong and Kalimpong. In the Autumn, in the months of September and October a smaller seasonal influx occurs. In the Winter many people from the hills go down to the plains. It is difficult to estimate what the summer population is or the time it rises to, as the number of visitors varies from year to year. Trade depressions, military conditions have from time to time checked the flow of summer visitors. The Partition

of Bengal in August 1947 deprived the State of the most convenient and direct rail route to Darjeeling as a result of which visitors were very few in the years 1948 to 1950. The landslides of 1950 completely ruined the summer traffic but from 1951 railway communications *via* Sahabganj, Sakrigalighat, Katihar and Siliguri having improved there have been fuller "seasons" from 1952. The presence of troops in cantonments and the visits of the Governor during the Summer and Autumn bring many visitors. In war time Darjeeling experienced somewhat of boom in visitors' traffic and it has been estimated that in the peak years of 1944-5

the summer population of the town exceeded 60,000. Similarly the population of Kurseong and Kalimpong increases considerably during Summer and Autumn. Since 1950, however, after the disastrous landslides and the withdrawal of the Siliguri-Delkhola Railway the traffic to Kalimpong has slumped considerably. A remarkable urban expansion has taken place of Siliguri which was described in the *Gazetteer* of 1907 as a swampy malarious village close to the foot of the hills with a population of 784. In 1941 it had a population of 10,487 which showed a 73 per cent. increase over the figure (6,067) for 1931. In 1951 the population is 32,480 which is twice as much again as the population in 1941. With an area of 3.6 square miles it has a population density of 9,022 persons per square mile in 1951 as against 2,913 in 1941. An indication of its rapid expansion is found in the remarkable disparity between the numbers of males (20,903) and of females (11,577). This expansion has taken place in spite of unhealthy and insanitary conditions and has no doubt been due to Siliguri's increasing importance as a focus of communications during the Second World War and after the Partition of Bengal in August 1947 through the establishment of the headquarters of the Eastern Group of Railways or what is popularly known as the Assam Rail Link Project. The town's population now is just half that of the thana which has an area of 124 square miles and about 28 per cent. of the population of the subdivision. The total of urban population in the district is about 94,500, i.e., about 21.22 per cent. of the population of the district. Kalimpong was declared a municipality after 1941 and Siliguri was declared a municipality in 1950. The following statement shows the persons per occupied house, sex, rural and urban population in the census of 1951 of the district:

Persons per occupied house

Total	...	4.77
Rural	...	4.72
Urban	...	4.95

Number of females per 1,000 males

Total	...	863
Rural	...	905
Urban	...	721

Percentage of rural and urban population to total population

Total	...	100
Rural	...	78.78
Urban	...	21.22

An attempt has been made to ascertain the population of certain other areas which are not purely rural. Such areas may be described as semi-urban and include bazars and settlements on the railway lines of the district (including the railway workshop area of Tindharia) and various other bazars and *hats* such as the Rambi, Algarah, Pedong, Labha and Tista bazars in the Kalimpong subdivision and Simana, Sukhiapokri, Badamtam, Bijanburi and Pulbazar in the Sadar subdivision. It has only been possible to make a rough classification but the total population of such areas is 12,707.

Rural areas fall into two main categories, first, what may be described as plantation areas, i.e., areas which have been exploited by large capitalist or departmental agencies and, secondly, those worked by the small cultivator controlled by the Revenue Administration or the Terai *jotedar*.

The plantation areas are the reserved forests of Government, the Government Cinchona plantations and tea gardens.

Of the areas worked by the small cultivator, by far the largest part is Government Khas Mahal land: the only appreciable area not described as Khas Mahal is the Kurmi Estate in the Sadar subdivision. But the Terai Khas Mahal has little resemblance to other Khas Mahals in the district because Government does not there deal direct with cultivators but only with middlemen.

The following statement shows the percentage of population living in villages and towns of various population sizes with reference to the total population of the district in the Census of 1951:

Less than 500	...	19.37
500 to 1,000	...	14.72
1,000 to 2,000	...	18.66
2,000 to 5,000	...	12.26
5,000 to 10,000	...	9.07
10,000 to 20,000	...	6.38
20,000 to 50,000	...	19.54
50,000 to 100,000	...	Nil
100,000 and above	...	Nil

The following table shows the percentage of the number of villages and towns and the percentage of the total population in villages and towns of the district in the years 1901, 1921 and 1951:

Year	Less than 2,000		2,000 to 10,000		Above 10,000	
	Percentage of number of villages and towns	Percentage of total population	Percentage of number of villages and towns	Percentage of total population	Percentage of number of villages and towns	Percentage of total population
1951	94.91	52.76	4.27	21.33	0.82	25.91
1921	92.10	64.75	7.67	27.37	0.33	7.88
1901	97.72	78.00	2.10	15.70	0.18	6.30

The following table shows the changes in the proportion of the sexes in the General, Rural and Urban population of the district between 1901 and 1951:

Sex ratio (females per 1,000 males), 1901—51

	1951 (without displaced persons)	1951	1941	1931	1921	1911	1901
Total	867	863	883	879	896	869	873
Rural	907	905	912	905	911	892	892
Urban	717	721	736	728	777	666	690

A study of the racial composition of the population of the district is interesting because of the number of races and tribes found and is of significance for those who wish to understand its history and forecast its future. In early times the Terai was sparsely populated by aboriginal Koches and Meches and the hills by aboriginal Lepchas. All had animistic religions and practised primitive methods of agriculture. Exploitation followed which radically altered the racial composition of the population as well as increasing it enormously. First some Mussalman conversion of Koches in the Terai probably occurred and an increase of Tibetan (including Bhutanese) influence from the north which began a process of domination over the Lepchas. Warfare between the Nepalis and Tibetans and Chinese resulted in further regression of the aboriginals and placed the Nepalis in a position to exploit when the British intervened politically. British exploitation was mainly in the development of tea, engineering, trade and education and did not result in any appreciable permanent British population. It brought in its train two large immigrations: in the hills, of Nepalis who were more useful as labourers on tea gardens and more efficient and thrifty as cultivators than the aboriginal Lepchas: in the Terai, of tribes from Chota Nagpur. As a consequence Lepcha and Tibetan influence in the hills declined.

Development of communications and trade brought a further exploitation of Marwari, Behari and Bengali traders and professional men. Economically these dominate the Nepali in spite of his

strong numerical position. But in numbers they are comparatively few and many of those who reside here have not made their permanent residence in the district.

The result is a very mixed population of Nepalis, Lepchas, Bhutias, Tibetans, Bengalees, Marwari and Beharis, in the hills, and of Bengalees, Muslims, Marwaris, Beharis, Rajbaushis, Santals, Oraons and Mundas in the plains with a sprinkling of British, Anglo-Indians, Chinese, Uriyas and Punjabis. Immigration has been considerable and still continues, much of the population being temporary or only semi-permanent.

Languages—It can readily be understood that many languages and dialects are current. The great majority of the inhabitants in the hills speak Nepali and, of these in the Terai, Bengali or Hindi. Nepali is a form of Hindi. There are however in addition dialects of various Nepali tribes which are still in use in the district among these are the Gurung, Limbu, Khambu, Sunawar, Yakha, Mangari and Murmi dialects. It appears however that the use of Nepali is spreading and the people of this district rely more and more upon it for use outside the family.

In the district of Darjeeling and the State of Sikkim special tabulation was made in respect of hill languages and dialects. The following table reproduced in part from the statistical section of this volume shows the number of each caste and of speakers of each dialect or language in Darjeeling district.

Number of each caste and of speakers of each dialect or language in Darjeeling district

Name of caste	Number of persons			Number of persons speaking the dialect
	Persons	Males	Females	
Badi	28	18	10	..
Bhujel	5,745	2,869	2,876	..
Bhutia	7,539	4,011	3,528	..
Chettry	30,463	16,063	14,400	..
Damai	9,116	4,639	4,477	9,116
Dukpa	1,157	615	542	..
Gharti	998	624	374	998
Gurung	17,864	8,947	8,917	17,841
Kagatey	365	156	209	..
Kami	19,432	9,742	9,690	19,432
Lepcha	13,374	6,801	6,573	..
Limbu	19,835	10,110	9,725	20,092
Majhi	327	158	169	..
Mangar	19,413	10,382	9,031	19,374
Nepali Brahman	11,317	6,016	5,301	..

Number of each caste and of speakers of each dialect or language in Darjeeling district—concl'd.

Name of caste	Number of persons			Number of persons speaking the dialect
	Persons	Males	Females	
Newar	14,827	7,674	7,153	14,813
Rai	64,745	32,396	32,349	64,730
Sanyasi	1,085	513	592	..
Sarki	2,932	1,559	1,373	2,932
Sherpa	8,998	4,760	4,238	8,989
Sikkimese	4	4	4	..
Sunwar	4,803	2,809	1,994	4,782
Tamang	49,890	24,862	25,028	49,780
Thami	475	282	193	..
Thakuri	804	542	262	..
Tibetan	1,717	1,028	689	..
Yogi	474	250	224	..

The following is an account of persons originating in the hills. The first to be discussed are the Nepalis of whom there are over 290,000 in the district. In numerical strength the most important and Nepali tribe is the *Kiranti*. Their original home lies between the Sankos river and the Singalila ridge and Mechi river in eastern Nepal. Included in the Kiranti tribe are the Limbus or Yakthumbas, the Jimdars or Rais and the Yakhas. When the Kirantis were conquered by the Gurkhas, the Gurkha king, perhaps anxious to conciliate his vanquished enemies, conferred upon the most influential amongst them powers to rule certain districts. The Jimdars so empowered were given the title of Rai and the Limbus that of Subba: these titles are now applied in the Darjeeling district to all Jimdars and Limbus. Those Kirantis living south-west of Mount Everest in the Khambu district usually call themselves Khambus.

The Rais are the most numerous tribe in the Darjeeling district and had their original home in Eastern Nepal. Their religious practices include both Hindu and Buddhistic rites: they have many custom in common with the Limbus and intermarriage tends to draw them closer together. Though Rais and Limbus are not considered to be of the warrior classes they offered a gallant resistance to the invading Gurkhas and they are recruited to combatant rank being considered equal in every respect to other fighting tribes.

The following table shows the number of Rais recorded as residing in the Darjeeling district:

RAIS			
1901	...	..	33,133
1911	...	..	40,409
1921	...	..	41,236
1931	..	..	47,431
1941	...	..	56,794
1951	...	..	64,745

In 1911, 39,448 residents of the district were recorded as speaking the Khambu dialect. The Rais have always been numerous in the district

and numbers have steadily increased. They are distributed throughout the district wherever Nepalis are found.

Sherpas originally came from the north-east of Nepal and are of Tibetan descent. They seem to be more definitely Buddhist in religion than any other of the Nepalis. They are mostly found in the Sadar subdivision and in the Kalimpong Khas Mahal, Forest and Cinchona areas. In 1901 there were 3,450 Sherpas in the district: in 1931 their number had increased to 5,295, in 1941 to 6,929 and in 1951 to 8,998. During the war Sherpas have been recruited to combatant rank in Gurkha battalions. This tribe supplies, for climbing expeditions through the Himalayas, most of the famous high altitude porters.

From the first Himalayan expedition Sherpas have served as porters, guides and companions. Every leader has praised in the highest terms the courage, fortitude, good humour, comradeship, judgment and the essentially gentlemanly qualities, of the Sherpa porter. No praise has been thought too little for him by Howard-Bury, General Bruce, Younghusband, Rutledge, Wilson, Shipton, Tillman, Smythe, Herzog, Chevalley and Hunt. The name of Gyaljen Sardar who worked as Assistant Interpreter and Sardar to the 1921-2 and 1924 expeditions to Everest blazed a trail of glory for the Sherpas and the climax was reached by one of India's greatest sons, Sherpa Tenzing, aged 39, who reached the summit of the Everest on May 29, 1953. Any Sherpa who reaches a height of 25,000 feet and stays on is given the title of Tiger. The first great name in mountain climbing was that of Sherpa Lakpa Chedi who in 1924 was one of the three Sherpas who showed that a camp could be established as high as 27,000 ft. Younghusband wrote that his (Lakpa Chedi's) name should be written in letters of gold with those of Irvine and Mallory. Lakpa Chedi again accompanied Rutledge in 1933 who gave him this tribute: "The best of the tigers of 1924.....once the base camp was reached he intended to climb as high as possible and he realised what an immense asset his prestige and influence would be in regard to the young entry".

Other great names are those of Dawathondup who even at the age of 49 reached more than 27,000 feet in the triumphant Everest Expedition of May 1953, Angtharkay, who has been climbing since 1933 and was hero of the French Expedition to Annapurna in 1950, the first Himalayan Expedition to conquer an 8,000 metre Peak, and Sardar to the recent successful French Expedition to Nun Kun; and Angdawa. The most brilliant of them all, Sherpa Tenzing, has been on many expeditions. His first Everest venture was with Eric Shipton in 1935; in 1936 he accompanied Hugh Rutledge to the mountain again; in 1938 he was with H. W. Tillman; in 1946 he was with a South African Party and in the pre-monsoon attempt of 1952, with the Swiss, Raymond Lambert, he got to 28,210 feet—the highest point then attained by man. But his finest hour was on May 29, 1953, when in his eighth adventure on Everest, he won undying fame by climbing the summit with Edmond Hillary, a New Zealander.

The Sherpas are a poor tribe, so poor that the Times Special Correspondent with the British Everest Expedition of May 1953 described the Sherpa as one who regards the supreme mountain as a perennial business proposition of earning three shilling six pence a day with climbing the Everest thrown in. The following charming description of the Sherpas in their home—which is Namche Bazar almost in the lap of the Everest—is reproduced from an article written by the Times Special Correspondent with the British Everest Expedition of 1953 published by the *Statesman* on June 17, 1953.

The success of Sherpa Tenzing has encouraged the Government to undertake opening a Himalayan Institute for Mountaineering and Research in Darjeeling.

For many years men of the Sherpa race who come from the district of Khumbu, in north-eastern Nepal, have earned their living in part or in full by working as porters and sirdars for foreign expeditions in many parts of the Himalayas. The climbers of these expeditions rely upon their Sherpas for most of the mundane necessities of life in the hills: for the erection of tents and the cooking of food, the mending of clothes and the carrying of goods and messages. On Everest and the other great mountains of the range, Sherpa duties include the carriage of stores to high altitudes. In return for these varied services Sherpa porters are normally paid the equivalent of 3s. 6d. a day plus their food.

The Sherpas, a hardy hill race of Tibetan stock, are tough, intelligent, friendly, and brave. There are innumerable stories of their courage and loyalty on expeditions, their indomitable good humour in adversity. But a man can best be judged at home, and it is only in the past three years—since Mr. Oscar Houston's party visited Khumbu in 1950—that foreigners have had the opportunity to see the Sherpa in his home country. Many of the Sherpas who work with the European Expeditions are men who have settled in Darjeeling, a principal base for expeditions, who have long adapted themselves to the European and his ways, and who may wear European clothes. Such a man is Tenzing Norkey, who is Sirdar of the present expedition (his sixth Everest Attempt). Tenzing is a man of some education, is currently wearing well-cut Swiss climbing clothes and reindeer fur boots, and is obviously and indisputably one of the Nature's

gentlemen. He has an inborn ease and elegance that would cause a flutter in many a London drawing room. In spite of his international fame, and although before the final assault he had climbed higher than any of the Europeans of the expedition, he throughout retained his modesty and was as willing to help in the menial tasks of camp life as to share the fiercest dangers of Everest's summit.

But it would be unwise indeed to judge the Sherpa race altogether by the example of Tenzing and his splendid kind. The chief characteristic that is likely to strike an observer meeting the Sherpa on his home ground away from the influence of Europeans and the call of the high mountains to duty and fidelity, is his rock-like insensibility. This is no doubt the result partly of his hard hand-to-mouth existence, partly of the isolated position of his homeland on the mountain frontiers of Tibet. Most Sherpas live in villages on or above 10,000 feet mark, and they earn their living by trading over the lofty pass of Nangpa La into Tibet. They breed yaks, moving their homes from season to season, up and down the mountain valleys, according to the demands of grazing and crops. They are mountaineers by birth and calling, hardened by the rigours of upland living; and for most of their lives they have seen no foreigners—an occasional Indian, perhaps certainly travellers from the plains of Nepal but nobody with a white skin.

Their shuttered and anachronistic way of life has given the Sherpas a sturdy independence; it has also perhaps fostered a certain grotesque heartiness that seems especially assertive, no doubt because of an innate sense of self-protection, when there are Europeans in the offing. The characteristic is almost exemplified in the appearance of the average Sherpa villager. He is not a big man—5 ft. 6 in. or so is probably the normal height—but he is broad and weathered-looking, rather like a Toby jug. His face is brown, but no more than a sunburnt Neapolitan's, and is of a slightly Mongolian cast.

He wears a kind of shirt over breeches and high, embroidered Tibetan boots of wool and leather. His overcoat is of thick brown wool, and he often wears it slung around his middle like a bath towel.

For chang (beer) and rakhsi (rice spirit) are undoubtedly the chief everyday pleasures of the Sherpas of Khumbu. On the march in the valleys there are frequent halts for chang, which in these parts is a glutinous semi-liquid like alcoholic porridge. In the evening the rakhsi pot passes fast and frequent, and is inclined to make the Sherpa even more insensible than usual to personal delicacies.

The Khas tribe, which has adopted the surname of Chettri, was one of three dominant tribes of Nepal which overthrew the Newar dynasty in 1769. The Chettris of Nepal are recruited to combatant rank in Gurkha regiments. They are reported to be careful and successful cultivators in the Darjeeling district. In 1951 there were 30,463 Chettris resident in the district which gives a considerable increase over recorded figures for 1901 (11,597) and 1911 (12,599). They are widely distributed throughout the district. This tribe has probably a large admixture of Aryan blood and it is the form of Hindi acquired by this tribe from Brahman and Rajput refugees in Nepal that has now become the Nepali of current use.

There are 1,085 *Sanyasis* in the Darjeeling district. This tribe whose surname is Giri, was never very numerous in the district: 1,151 were recorded in 1901 and 1,060 in 1911. During the

war *Sanyasis* of Nepal were enlisted in small numbers in combatant rank.

Nepali Brahmans are fairly numerous in the district, there being 8,999 recorded in the 1941 Census, Brahmans recorded (most of whom were Nepali Brahmans) were as follows:

BRAHMANS			
1901	...	...	6,470
1911	...	...	6,195
1921	...	...	8,174
1931	...	...	8,791
1941	...	..	8,999
1951	...	...	11,317

Nepali Brahmans are mentioned with Chettris as careful and successful cultivators. A large number of Brahmans of the district are residents of the Khas Mahals in the Kalimpong subdivision. No Nepali Brahmans are recruited to Gurkha regiments.

Bhujels were originally slaves in Nepal. Their status has improved and during the war some have been recruited to combatant rank. They number 5,745 in the Darjeeling district.

Yogis are not strictly a tribe or caste but only a group of those who have taken to a religious life. Seven hundred and fifty-two were recorded in 1931, 454 in 1941 and 474 in 1951.

Mangars were one of the three dominant tribes of Nepal who overthrew the Newar dynasty and are now chiefly occupied in agriculture, trade and soldiering; but like Nepali Brahmans they take readily to almost any occupation. Mangars of Nepal are recruited to combatant rank of Gurkha regiments. The figures below show how the population of Mangars in the district has increased:

MANGARS			
1901	...	...	11,912
1911	...	...	12,451
1921	...	...	14,934
1931	...	...	16,299
1941	...	...	17,262
1951	...	...	19,413

Mangars are found through the district wherever there are Nepalis.

Newars—This tribe ruled in Nepal until 1769 when it was overthrown by the Chettris, Mangars and Gurungs. They are now traders and artisans, agriculturists and domestic servants and during the war Newars of Nepal were recruited to combatant rank in Gurkha regiments. They have the surname of Pradhan and a dialect of their own spoken in 1911 by 5,150 residents of the Darjeeling district.

The population of Newars in the district has varied as follows:—

NEWARS			
1901	...	...	5,770
1911	...	...	6,927
1921	...	...	8,751
1931	...	...	10,235
1941	...	...	12,242
1951	...	...	14,827

Newars of the Darjeeling district have ceased to use the Newar dialect and they have become completely Hinduised. Newars are numerous in tea areas of the Sadar and Kurseong subdivisions and in the Kalimpong Khas Mahal areas. Nepal and Newar are really two forms of the same word and Newar merely means an inhabitant of Nepal proper before the Gurkha conquest.

Tamangs are a Mongolian or Semi-Mongolian tribe who claim to be among the earliest settlers of Nepal. They are probably descended from a Tibetan stock modified by inter-mixture with Nepali races. They bear the title of Lama and follow Buddhist practices although they still follow Hindu custom at death and on certain festivals. At their weddings Lamas serve as priests and prayer flags fly over their homesteads. They are also known as Murnis. Tamangs of Nepal are recruited to combatant rank in Gurkha regiments and they are very numerous in the Darjeeling district where they are good cultivators and are found in large numbers in tea gardens. In 1911, 29,963 and in 1951, 49,780 persons in the district were recorded as speaking the Murni dialect. Their numbers in the district have varied as follows:

TAMANGS			
1872	...	...	6,557
1901	...	...	24,465
1911	...	...	27,226
1921	...	...	30,450
1931	..	..	33,481
1941	...	...	43,114
1951	..	...	49,890

Gurungs are in Nepal a nomadic pastoral race subsisting by rearing and grazing cattle. They have a dialect of their own. They helped in 1769 to overthrow the Newar dynasty and Gurungs of Nepal are recruited to combatant rank in Gurkha battalions. Their numbers in the district have been as follows:—

GURUNGS			
1901	...	...	8,738
1911	...	...	9,628
1921	...	...	9,575
1931	...	...	11,154
1941	...	...	15,455
1951	...	...	17,864

They are well distributed throughout the district and numerous in tea gardens in the hills.

Limbus who bear the title of Subbah (Subba) are also numerous in the district. Their original home is in East Nepal but from their flat features, oblique eyes, yellow complexion and beardless faces, it can be surmised that they have descended from early Tibetan settlers in Nepal. They have intermarried in the Darjeeling district a great deal with Lepchas. Prior to 1887 most Gurkha regiments enlisted Limbus but after the formation of two Eastern Nepal Gurkha Regiments they, together with Rais, were enlisted exclusively in the Eastern Nepal Regiments of the Gurkha Brigade. They offered a most gallant resistance to the invading Gurkhas in Nepal. They are now engaged chiefly in agriculture, grazing, trade and portorage. They have a dialect of their own and in 1911, 11,489 and in 1951, 20,094 residents of the district were recorded as speaking the dialect. The Limbu population of the district has varied as follows:

LIMBUS

1901	...	...	14,305
1911	...	...	13,804
1921	...	...	14,191
1931	...	...	16,288
1941	...	...	17,803
1951	...	...	19,835

They are quite numerous in tea areas in the hills and in Khas Mahals of the Sadar and Kalimpong subdivisions.

Sunuwars are a cultivating tribe who were originally hunters and are recruited from Nepal to combatant rank in Gurkha regiments. They are fairly numerous in the Darjeeling district as the following figures show:-

SUNUWARS

1901	...	...	4,428
1911	...	...	3,820
1921	...	...	3,691
1931	...	...	4,055
1941	...	...	4,822
1951	...	...	4,803

Sunuwars have a dialect of their own which was in 1911 spoken by 3,511 residents of the district and in 1951 by 4,782 persons.

Yakhas are an agricultural caste calling themselves Diwan. They come from the same area in Nepal as the Rais and Limbus, those who come from the west of the Arun considering themselves Rais and those from the east of Arun, Limbus. They have a dialect of their own and are recruited to combatant rank in Gurkha Regiments. They are not numerous in the Darjeeling district, the following only being recorded:

YAKHAS

1901	...	...	1,143
1911	...	...	1,119

1921	...	...	Nil
1931	...	...	850
1941	...	...	824
1951	...	...	Not recorded

Damaïs are the tailor caste and are recruited to Gurkha battalions only as *darziz*. Their numbers in the Darjeeling district are as follows:

DAMAIS

1901	...	...	4,643
1911	...	...	4,453
1921	...	...	5,781
1931	...	...	5,551
1941	...	...	8,162
1951	...	...	9,116

Kamis or blacksmiths are only recruited to Gurkha regiments as armourers. They are quite numerous in the Darjeeling district as follows:

KAMIS

1901	...	...	9,826
1911	...	...	10,939
1921	...	...	11,779
1931	...	...	11,331
1941	...	...	16,272
1951	...	...	19,432

They are found in all areas in the hills but are particularly numerous in towns, on tea estates and in the Kalimpong Khas Mahals.

Sarkis are leather workers and are recruited to Gurkha regiments only as such. They have never been very numerous in the district. The recorded figures are:

SARKIS

1901	...	...	1,823
1911	...	...	1,992
1921	...	...	2,036
1931	...	...	2,432
1941	...	...	2,778
1951	...	...	2,932

They are more numerous in towns and tea gardens in the hills and in the Kalimpong Khas Mahals.

Gharti is the term applied in Darjeeling to descendants of freed slaves. There are only a few recorded now but in former census they seem to have been more numerous:

GHARTI

1901	...	...	3,448
1911	...	...	3,584
1921	...	...	Nil
1931	...	...	2,053
1941	...	...	496
1951	...	...	998

There were 2,393 persons in 1941 resident in the district recorded as *Nepali Christians*. They are

found mostly in the Darjeeling town, in the Kurseong and Kalimpong towns and special areas and in the Kalimpong Khas Mahals.

Hillmen other than Nepalis are *Bhutias* and *Tibetans* who have been classed together are Lepchas. *Bhutias* and *Tibetans* have been classed as follows:

- (1) Sikkimese Bhutias, a mixed race descended from Tibetans who settled in Sikkim some centuries ago and inter-married with Lepchas,
- (2) Sherpa Bhutias or Bhutias of Nepal who come from the east or north-east of Nepal,
- (3) Dukpa Bhutias or Bhutias of Bhutan proper, and
- (4) Bhutias of Tibet or Tibetans.

Sherpas have been dealt with under Nepalis and the other three classes have been grouped together.

In the 1951 Census the numbers of these four classes were given as:

Bhutias of Bhutan (Dukpas)—1,157

Bhutias of Nepal—7,539

Bhutias of Sikkim—4

Bhutias of Tibet —1,717

This gives a total of 10,417 Bhutias who were not Sherpas. It is not clear whether the census figures below for 1901, 1911 and 1921 included Sherpas or not:

BHUTIAS AND TIBETANS

1901	...	...	9,315
1911	...	...	10,768
1921	...	...	10,710
1931	...	...	5,334
1941	...	...	7,612
		(7,271 plus 341)	
1951	...	...	10,417

If Sherpas are included there would be in 1931, 10,629 Bhutias, in 1941, 14,541 Bhutias, and in 1951, 19,415 Bhutias resident in the district. In 1891, 5,866 persons were recorded as speaking Bhutia and 1,526 as speaking Tibetan. In 1911, 10,775 persons were recorded as speaking Bhutia and in 1931 this had increased to 11,761. It is difficult from this material to come to a satisfactory decision about an increase or decrease of the Bhutia population of the district.

The Bhutias and Tibetans are people of considerable physical strength and capable of enduring exposure and carrying heavy burdens. They are fond of gambling and display and though somewhat quarrelsome are cheerful and willing workers.

The *Lepchas* are the original inhabitants of the country. They called themselves Rong, i.e., the squatters, and their country, the land of caves. The term Lepcha or Lapche is an appellation given them by the Nepalis and means the people of vile speech. Originally the Lepchas possessed all the hill country of Darjeeling and Sikkim and when the British first acquired Darjeeling it was then reported that they formed two-thirds of the population of Sikkim. About 300 years ago the Tibetans invaded their country and drove them into the lower valleys and gorges: in 1706 the tract east of the Tista, now Kalimpong, was conquered and taken from them by the Bhutanese. The reservation of forests by Government has further cramped their means of livelihood and natural environment and they are far less efficient as cultivators than the Nepalis who seem also to be more prolific. It is not possible to estimate with any accuracy how far they are able to maintain themselves under modern conditions as they perpetuate their families by adoption, intermarry freely with other races, notably Limbus and Sikkim Bhutias, and have emigrated to Bhutan in some numbers. They do not seem to have been ever very numerous in the district. 13,374 persons spoke the Lepcha tongue in 1951.

Their traditional method of cultivation is that of *jhuming* by which they burn down a patch of jungle and cultivate it for a year or two before moving on to some other jungle area. It is a wasteful and inefficient system but it no doubt accounts for their dislike of fixed employment and their interest in jungle life.

Brief notice requires to be taken of the Displaced Persons of the district. The Deputy Commissioner estimated that between October 1946 and end of December 1949 about 17,500 persons poured into the district from Pakistan and another 8,800 in 1950 and 1951. This figure differs slightly from the census estimate. Various rehabilitation measures have been taken, chief of which have been the granting of Business loans to tradesmen, House building loans, Medical and Legal Practitioners' loans for the rehabilitation of doctors and lawyers, Agricultural loans for the purchase of cattle, plough seeds, etc. An amount of Rs. 25,000 was spent in 1950-1 over the Matigara colony. An amount of Rs. 72,900 has been spent on the acquisition of land for the settlement of refugees. A total sum of Rs. 365,590 was spent towards the rehabilitation of refugees up to the end of 31st March 1952.

PUBLIC HEALTH

Health conditions in the district depend greatly upon altitude and climate. Accurate figures are not available to show the prevalence of various diseases in different localities but it may generally be assumed that areas below a height of 2,500 feet

above sea level, and particularly the Terai and the Tista valley, are most unhealthy; and that, as one ascends above that altitude, abnormally unhealthy conditions are replaced by those characteristic of temperate climates. At the altitude of Darjeeling town (between 6,500 and 7,500 feet above sea-level), the mean temperature is about 50° Fahrenheit and the range is moderate. Although humidity is high, the climate is relatively bracing and the food better than that of the plains and lower elevations: these are conditions which favour good health for both visitors and permanent residents.

Malaria—Prevalence and intensity of malaria is measured by the percentage of children between the ages of 2 and 10 whose spleens are enlarged. Areas where the percentage is less than ten are classed as healthy: those with rates between 10 per cent. and 25 per cent., as affected by moderately endemic malaria: those with a spleen rate between 25 per cent. and 50 per cent., as highly endemic and those with rates above 50 per cent. as hyper-endemic. In the Terai malaria is hyper-endemic (90 per cent.) and in the hill valleys (specially the Tista valley) the rate is below 20 per cent. The disease does not appear as a fresh infection in places above 4,000 feet altitude as the mean temperature is usually too low to permit breeding of the parasites, although anopheles mosquitos have been found in Sikkim at altitudes as high as 5,750 feet. At altitudes between 2,000 feet and 3,500 feet malaria incidence is comparatively slight and cases which occur above 4,000 feet have been imported from lower infected areas.

Tuberculosis—Accurate information about the prevalence of tuberculosis has not been collected but in 1937 the All-India Institute of Hygiene and Public Health conducted a small tuberculin survey in Kalimpong town which indicated that about 45 per cent. of those examined had been exposed to infection though had not necessarily contacted the disease. Provincial mortality figures show that Darjeeling district was second only to Calcutta city in death rate from pulmonary tuberculosis. No full or district-wide survey has been made but the information given above affords ground for suspecting that the disease has been increasing particularly in the hill areas of the district.

Recently, a BCG team of the World Health Organisation made a survey of a portion of the Darjeeling hills and their report is reproduced below. The diagrams have not been reproduced.

An experienced BCG research team composed of a doctor, nurse, and statistician was assigned the task of collecting precise, quantitative information on tuberculin sensitivity in various places in India. An area around the Indian town of Darjeeling was selected as the locale of one investigation. A portion of the findings of the investigation in this area is reported here since it demonstrates remarkable differences in tuberculin sensitivity at different altitudes of residence. The nature of these differences indicates that the problem of varying patterns of tuberculin sensitivity is broader than originally supposed and invites serious thought and continued investigation.

LOCATION OF STUDY.

Darjeeling is an Indian town situated high in the Himalayan foot-hills about 300 miles north of Calcutta. It is within a few air miles of the borders of Nepal, Bhutan, and Tibet and lies at the end of a mountain ridge which drops away precipitously from the town in three directions. From the valley beds at 1,000 feet to the crest of the ridge at 7,000 feet the mountain side is dotted with tea plantations. Labourers and their families on nine of these tea gardens were tuberculin tested and vaccinated with BCG.

The map shown in figure 1 gives the altitude curves for the region and shows the positions of eight of the nine tea gardens chosen for testing. The ninth garden, Ambootia, lies about 15 air miles to the south. The gardens, belonging to two tea companies are listed in table 1, along with their altitudes based on the level at which the majority of the workers live. Although their altitudes differ widely eight of them lie almost entirely within a circle having a radius of only 3 air miles.

POPULATION CHOSEN FOR STUDY

The population chosen for testing was composed of tea-garden workers and their families. About one-third of the total population in each tea company was tested. In one company, persons from 0 to 20 years of age were selected for study; in the other, persons from 5 to 25 years of age were selected. In general, male and female children work from the age of 12; consequently nearly half the population are workers. The population and the number tested in each garden are given in Table 1. The age distribution is given in Table 2. The number of males and females was approximately equal.

As far as is known, tests were given to practically every one in the age groups chosen for testing, and about 90 per cent. of the tests were completed (Table 1).

The majority of the tea labourers are Nepalese people of Mongolian race. They are small in stature and work hard from a very young age. Their faiths vary. About 13 per cent. are Buddhists; a very few are Christians or Moslems. The rest, the major portion, are Hindus who, however, apparently do not adhere so strictly to vegetarianism as do the Hindus in other parts in India.

TABLE 1. *Extent of tuberculin testing in tea gardens grouped by altitude, Darjeeling, 1949-50*

Garden ¹						Altitude above sea level (feet)	Population ²	Persons 0—24 years		
								Tested with 1 TU	Testing completed ³	Percent testing completed
LOW ALTITUDE										
Single	..	..	..	..	..	2,000	1,553	499	395	79
Ging, lower	..	..	..	..	..	2,600	1,366	399	394	99
Ambootia	..	..	..	..	..	3,000	1,911	597	554	93
Tukvar lower	..	..	..	..	..	3,300	1,019	325	286	88
Total	..	..	..	..	..	..	5,849	1,820	1,629	90

TABLE 1. *Extent of tuberculin testing in tea gardens grouped by altitude, Darjeeling, 1949-50—conold.*

Garden ¹					Altitude above sea level (feet)	Population ²	Persons 0—24 years		
							Tested with ITU	Testing completed ³	Percent testing completed
MIDDLE ALTITUDE									
Bannockburn	..	..	..	..	4,500	909	347	333	96
Tukvar, upper	..	..	..	..	4,600	1,710	545	513	94
Ging, upper	..	..	..	..	4,800	726	212	204	96
Takdah	..	..	..	..	5,000	1,641	508	458	90
Total				..	..	4,986	1,612	1,508	94
HIGH ALTITUDE									
Phoobsring	..	..	..	..	5,500	993	307	268	87
Puttabong	..	..	..	..	5,500	913	374	309	83
Rungneot	..	..	..	..	6,500	513	185	150	81
Total				..	..	2,419	866	727	84
Total for all gardens				..	..	13,254	4,298	3,864	90

Frequently four to six persons live in a hut 10×20 feet which is usually built directly on the ground with walls of plank or of bamboo plastered with earth. They have roofs of thatch or of corrugated iron sheeting. The huts

are dark and poorly ventilated and very often their small windows are deliberately covered by the occupants. During the very heavy rains that occur in the monsoon seasons, the houses afford but moderate protection.

TABLE 2. *Number of persons tested with 1, 10 and 100 T U, by age and altitude of residence, Darjeeling, 1949-50*

Age in years		Altitude								
		1 TU			10 TU			100 TU		
		Low	Medium	High	Low	Medium	High	Low	Medium	High
Reactions read :										
0-4	..	160	171	109	138	160	98	125	157	90
5-9	..	328	329	166	254	264	126	208	249	122
10-14	..	520	547	224	369	382	155	233	319	127
15-19	..	487	356	205	322	206	109	147	141	98
20-24	..	226	163	77	96	79	36	34	40	28
Total	..	1,721	1,566	781	1,179	1,001	534	747	906	465
Reactions not read										
	..	99	46	85	36	42	24	56	16	80
Total tested	..	1,820	1,612	866	1,215	1,133	558	803	922	495

The majority of the tea labourers go barefooted most of their lives. Hookworm and respiratory ailments are common. Malaria is said to be frequent at the low altitude, but rare above 3,500 to 4,000 feet. In the six gardens belonging to one of the tea companies, the crude death and birth rates for the year 1948 were 2 and 4 per cent., respectively.

MATERIALS AND METHODS

The work of the team was carried out in accordance with a protocol carefully prepared in advance. In addition, all necessary supplies were new and carefully cleansed, packed, and sterilized in the headquarters office in Copenhagen.

¹Puttabong, Tukvar and Singla tea gardens belong to 1 tea company while the 6 other tea gardens belong to a second tea company.

²Based on census taken within 6 months of testing. Division of population on upper and lower parts of Tukvar and Ging is estimated.

³10 and/or 100 TU tests were given if required and all reactions were read within 4 days.

The tuberculin used for testing was part of a lot of purified protein derivative (No. RT XIX-XX-XXI) prepared by the State Serum Institute at Copenhagen. Three different doses were given as follows: the 1 unit test (0.00002 mg.) was given to all persons in the study group. The 10 unit test (0.0002 mg.) was given only to those persons who had reactions of less than 6 millimeters of induration to the 1 TU test. The 100 unit test (0.002 mg.) was given only to persons who had reactions of less than 6 millimeters of induration to the 10 TU test. The dilutions of tuberculin were carefully prepared in the field from a concentrated stock solution using pipettes. In no instance were the dilutions used longer than 16 days after preparation.

The tuberculin tests were given intradermally in the upper half of the volar surface of the forearm. One-tenth of a cubic centimeter of diluted tuberculin was carefully measured from a tuberculin syringe for each injection. Only reactions which were read at 3 or 4 days are used in this study. The widest transverse diameter of both erythema and induration was measured in millimeters, and the density of the reactions was graded in four qualitative categories. Both the team doctor and the nurse gave injections but all reactions were read by the team doctor. The entire testing and vaccination

programme in the Darjeeling area was carried out in the period from December 27, 1949, to February 8, 1950.

FINDINGS

Detailed data on the results of tuberculin testing are given in appendix Table 1*. Text Tables 3 and 4 and figures 2, 3, and 4 are presented to summarize the data and to bring out the striking differences in the patterns of tuberculin sensitivity that are associated with altitude of residence and age of the tested population.

The section to the left in figure 2 shows, separately for each altitude of residence, the change with age in the percentages of the population designated as positive reactors to the 1 TU dose of tuberculin, according to the usual criteria of more than 5 mm. of induration. Among children under 5 years of age, in all altitudes, about 5 per cent. had reactions of more than 5 mm. of induration to this first low dose of PPD. For the age group 20 to 25 years, the frequency of such reactions increases to about 50 per cent. While there are some systematic fluctuations in the age curves it is obvious that altitude of residence does not markedly influence the frequency of reactions ordinarily designated as positive to the 1 TU test.

TABLE 3. *Percentage of reactors¹ among¹ nonreactors to previous tuberculin test, by age and altitude of residence, Darjeeling, 1949-50*

Age in years		Altitude								
		1 TU			10 TU			100 TU		
		Low	Medium	High	Low	Medium	High	Low	Medium	High
0-4	..	8.1	5.3	4.6	2.2	1.2	0.0	16.8	5.1	3.3
5-9	..	19.8	15.5	13.3	9.1	2.7	4.4	44.7	22.1	10.7
10-14	..	26.7	26.7	28.1	33.6	15.2	9.7	72.5	40.8	19.7
15-19	..	32.9	40.4	45.4	50.9	30.6	9.2	89.8	64.5	31.6
20-24	..	57.1	50.9	51.0	64.6	49.4	22.2	94.1	75.0	46.4

TABLE 4. *Combined distributions of reactions to 1, 10 and 100 TU by age and altitude of residence (percentages²)*

Mm. of induration		Dose (TU)	Age in years								
			Low altitude			Middle altitude			High altitude		
			0-9	10-14	15-24	0-9	10-14	15-24	0-9	10-14	15-24
0-5	..	100	51.6	13.4	2.6	72.7	36.9	12.0	81.3	52.1	30.1
6 and over	..	100	26.9	35.3	24.7	13.4	25.3	24.1	6.6	12.8	16.1
6 and over	..	10	5.6	24.6	32.1	1.9	11.1	20.1	2.3	6.9	6.6
6-11	..	1	6.1	12.5	27.1	3.4	11.3	22.2	4.0	5.4	11.0
12 and over	..	1	9.8	14.2	13.5	8.6	15.4	21.6	5.8	22.8	36.2
Total	..	..	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

The middle section of figure 2 shows the age curves of percentage of reactors (more than 5 mm. of induration) to 10 TU among those not designated as positive reactors to 1 TU. Similar age curves for the 100 TU dose of tuberculin, among nonreactors to 10 TU, are shown in the right hand section of the figure. The enormous influence of altitude of residence on the frequency of reactors to the two larger doses of tuberculin is clearly apparent. As illustrations it may be noted that for the age group 20-25 less than 25 per cent. of the population living at altitudes above 5,500 feet react to 10 TU, while more than 60 per cent. of those of similar age react if they live at elevations less than 3,300 feet; among nonreactors to 100 TU, 20-25 years of age, 46 per cent. to 100 TU if they live above 5,500 feet while nearly 95 per cent. react if they live below 3,300 feet.

In general, it is evident that there is a marked association between altitude of residence and the frequency of reactors to the 10 and 100 TU doses of tuberculin: the higher the place of residence above sea level the lower the prevalence of reactors to these doses. Further, with increase in the age of the persons tested there are very sharp increases in the frequencies of these reactors, especially of those to the 100 TU test.

Only part of the important differences in the pattern of tuberculin sensitivity according to altitude are brought out by a consideration simply of the prevalence of "positive" reactors to the three graded doses of tuberculin. In figure 3, histograms illustrating the frequency distributions of the measured sizes of reactions are shown for five age groups, for each dose of tuberculin, and for the three

¹A reactor is defined as a person with a reaction of more than 5 mm. induration.

²The percentages are calculated under the assumption that the reactions not read were distributed in the same way as those read.

*Reference to the original—A.M.

altitude groups. Inspection of these 45 histograms reveals several significant facts. First, although the percentages of reactors designated as positive to the 1 TU test are not very different for residents at different altitudes, the distributions of sizes of reactions show sharp contrasts. The characteristic tendency may be noted by comparing, for example, the distribution of reactions to 1 TU for 15-19-year old children living at high and low altitudes. The distribution for the low altitude group is J-shaped; the most frequent class is that having reactions of 0-2 mm. in diameter, with a gradual decrease in frequency of the larger reactions. Very few children have reactions of 15 mm. or more. The distribution for the high altitude group shows an entirely different pattern. While the 0-2 mm. class contains the greatest number of cases, the remainder of the distribution appears to have the form of a "normal" frequency curve with its mode for the class having reactions 12-14 mm. in diameter. A substantial proportion of the children have reactions measuring 15 mm. or more in diameter. Although it is less apparent for the younger children, there is a general tendency for the size of the 1 TU tests at the low altitude and for 100 TU tests at the high altitude. Frequency distributions resembling the form of normal curves tend to appear for 1 TU tests at the high altitude and for 100 TU tests at the low altitude.

The detail presented in figure 3 suggests another significant fact: the form of the distribution of 1 TU reactions may be useful in predicting the pattern of sensitivity to the higher doses of tuberculin. Thus it appears that the presence of many 3-5 m.m. reactions to the 1 TU test, as revealed in the J-shaped distributions for low-altitude residents, is associated with the finding of many reactors to the higher doses of tuberculin. Relatively few small reactions to 1 TU, as observed among high altitude residents, indicate the absence of many reactors to the higher doses of tuberculin. This finding probably means that fairly strong reactors to the higher doses, even 100 TU reactors, tend to reveal their presence by showing small reactions below the size usually regarded as positive to the less concentrated doses of tuberculin.

In order to show altitude differences for the whole range of tuberculin sensitivity, Table 4 and figure 4 present distributions of the frequency of reactions according to five broad classes for three age groups for each altitude of residence. For these distributions reactions to the 1 TU are subdivided arbitrarily into those measuring more than 11 mm. of induration and those 6-11 mm. in diameter; all reactions larger than 5 mm. to the 10 TU are placed in a single class; 100 TU reactions are subdivided into two classes, those above 5 m.m. in diameter and those showing 5 mm. or less of induration.

Differences between the distributions are apparent to some extent in the youngest age group but these differences are in general limited to the frequencies of 100 TU reactions. With increasing age, however, a gradual shift from smaller to larger reactions occurs and at the same time the various altitudes develop singularly diverse patterns. Maximum differences in the pattern of tuberculin allergy may be noted by comparing the upper and lower histograms shown at the right side of figure 4. In the upper histogram, for the group 15-24 years of age living at an altitude above 5,500 feet, the distribution is clearly U-shaped. There are many large reactions to 1 TU, many small reactions less than 6 mm. to 100 TU, and few of those representing intermediate degrees of allergy, particularly reactions to 10 TU. The lower histogram, for 15-24 year olds living less than 3,300 feet above sea-level, is strikingly different. It is unimodal with most of the population showing the intermediate degrees of tuberculin sensitivity, the most frequent reactions being those to the 10 TU test.

DISCUSSION

The population dealt with in this investigation comprised groups of persons comparable with respect to race, age, sex and major habits of life. Persons in the age groups studied were exceedingly restricted in their

travel. As far as could be determined by inquiry the prevalence of tuberculosis was the same throughout the whole area. Consequently, so far as is known the difference in altitude of residence is the most obvious single variable in the population.

Many factors—constitutional make-up of the people, dosage and mechanism of infection, inherent characteristics of the infecting organism—may be pertinent in attempts to explain the observed variations in tuberculin sensitivity. It is possible that environmental factors, such as climate, affect the quantity or the quality of infecting organisms or that different modes of infection may occur at differences in allergic response to tuberculous infection may occur in persons living at different altitudes. But considerations of how these factors could produce such large variations predominantly in sensitivity to the higher doses of tuberculin without producing greater change in sensitivity to the low dose or without an obvious influence on tuberculosis morbidity and mortality, become so complex that one is tempted to seek other and perhaps simpler explanations of this phenomenon.

The common occurrence of cross reactions among skin testing antigens, and the similarity between the pattern of sensitivity produced in cases of known cross reactions and the pattern of sensitivity found in the low altitude at Darjeeling (and in certain other regions) suggest that some of the sensitivity to tuberculin observed in these locations may be due to infection with an agent other than the ordinary human strain of tubercle bacillus.

Furthermore, the patterns of tuberculin sensitivity observed at the high and low altitudes in Darjeeling resemble those found in student nurses in widely separated geographic areas in the United States, for example, in Philadelphia and Louisiana. Since regional differences in the United States could not be adequately explained by difference in the prevalence of tuberculosis morbidity and mortality, the possibility of a non-specific infection by some agent closely resembling and antigenically related to the tubercle bacillus was offered as an explanation (1). It is possible that the same type of non-specific infection may exist in the Darjeeling area.

In an area where a nonspecific agent is present it is reasonable to expect that some persons will be infected with both the tubercle bacillus and the "nonspecific" agent. If it is supposed that the tuberculin sensitivity of such individuals is increased by the double infection, there should be relatively more large reactions (a higher level of sensitivity) to the low dose of tuberculin in areas where the nonspecific infecting agent is most prevalent, other factors in the two communities being the same. In this study the opposite is true; there are relatively more large low dose reactions at the higher altitudes where the non-specific theory assumes that there are fewer nonspecific reactions. To conform to the patterns of sensitivity observed in Darjeeling, the nonspecific theory must now postulate that infection with both the nonspecific agent and the tubercle bacillus does not result in higher sensitivity but, in fact, results in diminished sensitivity. The idea that persons first infected and sensitized by the nonspecific agent resist further development of allergy upon subsequent infection with the tubercle bacillus or that persons first infected and sensitized by the tubercle bacillus are partially desensitized by subsequent infection with the nonspecific agent, merits consideration in the light of the experience in Darjeeling.

While the nonspecific theory is offered as the most probable explanation of these findings, the main purpose of this paper is to report that remarkable real differences in the patterns of tuberculin sensitivity do occur in a homogeneous population living in close proximity but at different altitudes. The people studied live within a few air miles of one another in a type of mountainous country where transportation difficulties and economic conditions are such that most of the people spend their lives very close to their homes on the tea plantations. Yet, within such a homogeneous group, great differences are found in tuberculin sensitivity at different altitudes of residence.

These findings are not explained adequately by any of our traditional notions of how tuberculous infection and allergy production operate. A proper explanation would contribute to the value of the tuberculin test and might lead to substantial contributions in the general field of allergy.

SUMMARY

A homogeneous population of about 4,000 persons, 0—25 years of age, from tea plantations of a small mountainous area around Darjeeling in northern India, was tested serially with graduated doses of 1, 10, and 100 units of tuberculin. Very marked differences in the pattern of allergy were shown to exist at different altitudes of residence. While the frequency of reactions designated as positive to the 1 unit test were approximately the same at all altitudes, reactions to this dose tended to be larger at the high altitude. With the 10 and 100 unit tests a remarkably proportion of reactors occurred at the lower altitudes.

The hypothesis is offered that these variations in sensitivity at different altitudes, resembling those found in different areas in the United States, are due to the presence in the lower altitudes of a very prevalent, non-pathogenic organism, closely related to the tubercle bacillus, which produces sensitivity to tuberculin. It is further speculated that infection with both the non-specific organism and the tubercle bacillus results in a lower level of sensitivity than that produced by the tubercle bacillus alone.

The material also suggests that the general form of a 1 unit distribution of reactions may be useful in predicting the pattern of sensitivity to the higher doses of tuberculin.

The investigation illustrates the opportunities that exist for wider geographic research and the value of carefully planned and executed studies which take advantage of these opportunities.

Leprosy—In regard to leprosy, a sample survey was carried out in 1937 by the Bengal Branch of the British Empire Leprosy Relief Association which gave an incidence of 2·3 per cent. for the Siliguri subdivision and a much lower rate for the hill areas and hillmen.

Other diseases—Amoebic infections are extremely common and in the rural areas amoebic and bacillary dysentery present major public health problems. Round worms and hookworms affect large areas: the latter being particularly prevalent on the tea gardens at the lower altitudes. Cholera only appears in the submontane areas when imported from other parts of Bengal and is rarely a serious problem. Enteric fever groups are occasionally reported. Measles, chickenpox, German measles and mumps occur as seasonal outbreaks particularly where there are schools. Smallpox only appears sporadically usually in arrivals from the plains. No difficulty is experienced in checking small outbreaks and the public respond well to appeals for mass vaccination. A typhus epidemic broke out in 1944 which caused a number of deaths before it could be checked.

Administration.—From 1922 to 1932 responsibility for public health in the district with the District Board under whom the Civil Surgeon controlled public health as well as medical organisations. Proposals for appointing a District Health Officer and a District Public Health Organisation on the model accepted for other districts in the Province

were forwarded to Government in 1930 and resulted in 1932 in the appointment of a District Health Officer who was first to study the peculiar health problems of the district and thereafter to make proposals. The resultant proposals to combine medical and public health activities were accepted but the need for revision in certain details, as alteration in the department's policy and constitutional changes delayed introduction of a scheme until September 1942.

The Rural Health Scheme adopted in 1942 covered the greater part of the district with 15 Health Units, each in charge of a Rural Health Officer under whom was a Health Assistant and one other officer. Supervision was by the District Health Officer, two Assistant Health Officers and four Sanitary Assistants. In addition a travelling Sub-Assistant Surgeon in the Terai visited *hats* and other centres. The above units were established but all could not continue to function in war time owing of lack of qualified personnel. They averaged 54 square miles in area and the Rural Health Officer in charge was responsible for all the health measures required in his area and for an outdoor dispensary at his headquarters which he was expected to attend at least three hours daily for six days in the week. His duties included lecturing to the rural population on sanitation, verification of births and deaths, teaching in schools, inspection of markets and the combating of epidemics by preventive and remedial action. The operations against Kala-azar which had been started in 1938 were also taken over by these units. This scheme, has in 1948 been supplanted by the Rural Health Centre Scheme but until such time as there is a full network of these centres the old scheme continues.

In the Darjeeling town, although a conservancy department had been in existence before 1920, it was not until then that a Medical Officer of Health and a Sanitary Officer were appointed. A public health laboratory was established in 1922 which now has a Bacteriologist and a Chemist and deals with clinical work and with the examination of food and water samples. Other Sanitary Inspectors were later appointed and now the scope of activity of the Municipal Health Department includes the following:

- (1) Prevention and control of epidemic diseases, management of the Infectious Diseases, Hospital and a Charitable Dispensary at Ghum,
- (2) anti-tuberculosis work and management of the Tuberculosis Hospital,
- (3) control and supervision of two Maternity and Child welfare centres,
- (4) control and inspection of slaughter houses, of the sale of meat and fish and of cooked food in hotels and eating houses; performance of the duties of Public Analyst and under the Bengal Food Adulteration Act,

- (5) examination (bacteriological, etc.) of samples of water, sewage and of pathological specimens of diagnosis,
- (6) record and check of vital statistics, and
- (7) management of the conservancy system.

Vital statistics—In municipal areas births and deaths are recorded in the Municipal Offices of Darjeeling and Kurseong. In rural areas, officers in charge of police stations are the registering officers. The only exceptions are the Siliguri Union Boards where the Presidents record and the Cantonments of Lebong and Jalapahar where the Executive Officers record. Information is collected by managers on tea gardens, by rangers of forest villages, by the Tahsildars in Darjeeling Improvement Fund *hats* and by road *khalasis* for roadside lands. Outside these areas, in the hills village mandals collect the information and in the Terai village chaukidars. Monthly returns are supplied by registering officers to the District Health Officer and by him transmitted to the Director Public Health.

Water-supply—After a severe epidemic of dysentery at Giddubling in 1937, efforts were made to protect rural supply springs in the hills from contamination by leading water therefrom in pipes. In 1940 nearly 10,000 running feet of piping were laid for the supply of this village at a cost of nearly Rs. 10,000. Improved water-supplies on the above lines have been provided by various authorities at the following places:

Sadar subdivision—Sukhiapokri, Simana, Takdah Cantonment, Takdah Khasmahal, Soreang, Lepcha Bazar, Mangpu Cinchona Plantation, Manibhanjan, Kolbong, Sonada, 3-mile basti, Bijanbari and Pulbazar.

Kurseong subdivision—Punkhabari, Mirik and Tindharia,

Kalimpong subdivision—Algarah, Pedong, Giddubling, Kankibong, Rambibazar, Rityang and Kalijhora.

The supply of water to the Darjeeling urban area is from springs on the Senchal spur. Water is collected from more than 30 springs and flows by gravity to two lakes above Ghum on the Senchal hill: after settlement there it passes through pressure filters to three service reservoirs in the town from which it is distributed. The spring catchment area is fenced and protected from contamination so that filtering is almost unnecessary. Since completion in 1912 the waterworks have been supplying good potable water with a high standard of purity. During the dry season when the yield of the springs runs low, supply is augmented by pumping water from a perennial spring at Konkhola lower down the hills. The rest of the system of collection and distribution works by gravity. The works are maintained by the Darjeeling Municipality. The average daily

supply is 750,000 gallons and the total capital cost has been Rs. 1,076,000.

The Kurseong Waterworks are maintained by the Kurseong Municipality. They supply about 153,000 gallons of filtered water and 40,000 gallons of unfiltered water daily. The unfiltered supply is used only for flushing 8 public latrines. The filtered supply consists first, 15,000 gallons daily to the Dow Hill area from the Dow Hill springs and second, of a supply to the town area from the Sepoy Dhura spring, 4 miles from the town. Water is conveyed from there by a 4" pipe to an 80,000 gallon reservoir near St. Helen's School from which it is distributed by gravity to 400 house connections and 60 street hydrants. Both supplies are filtered through rapid pressure filters. Total cost has been Rs. 129,000. The works began operating in 1913.

The Kalimpong Waterworks are operated by the Engineering Branch of the Public Health Department of the Government of Bengal. Supply is from two springs—at the source of the Rilli and at Thakchu 18½ miles from the Kalimpong bazar. Water is conveyed to Sanser 12 miles from the bazar in a masonry conduit and there chlorinated. It is then conducted by a 6" pipe to a 3,000,000 gallon storage reservoir about 2½ miles from Sanser from which it gravitates to various supply tanks and is delivered to consumers through 300 house connections and 44 street tanks. Average daily supply is 210,000 gallons. The works were completed in 1922 and the capital cost so far incurred has been Rs. 875,000.

There was formerly an impression that water in the hills of the district contained mica which frequently gave rise to dysentery. This impression has been proved to be without foundation and the dysentery symptoms wrongly attributed by newcomers to mica in the water are more often due to changes of climate and diet and more particularly to the error of overeating into which visitors are prone to fall due to the unaccustomed cold.

Sewage disposal—In rural areas, the failure of the people to observe proper sewage disposal results in insanitary conditions and the prevalence of worms. There is a sewerage system in the Darjeeling town to which certain houses are connected as well as 53 public latrines. The majority of houses however are served by a hand collection system dumping into 6 chutes. All sewage is treated in septic tanks and the effluent discharges into jhoras at a distance from inhabited localities. The system is operated by the Darjeeling Municipality. The Kurseong sewerage system serves only 10 public latrines and a few houses in the bazar area. The total length of piping is 8,000 feet and sewage is discharged into jhoras outside the town after treatment in a septic tank. In Kalimpong, houses in the development area are required to have water-borne sanitation. In the bazar there are 5,000 feet of sewers serving 8

public latrines and a number of houses. Discharge is into *jhoras* below the bazar after treatment in a septic tank. Both at Kurseong and Kalimpong surface drainage enters the sewer piping system through gully pits. The Kalimpong bazar sewerage system was completed in 1930. In the Siliguri bazar there is only the primitive hand removal system of sanitation controlled by the Municipality.

An account of the dispensaries and hospitals of the district will be found in the statistical section of this volume. In addition to these hospitals and dispensaries the following 14 Rural Health Treatment Units have functioned after 1942: (1) Sukiapokri, (2) Singla, (3) Bijanbari, (4) Lodhama, (5) Tukdah, (6) Mirik, (7) Sukna, (8) Algarah, (9) Garubathan, (10) Shamsing, (11) Matigara, (12) Bagdogra, (13) Phansidewa, (14) Kharibari.

In 1950-1 a Thana Health Centre was opened at Tukdah under the New Rural Health Centre Scheme. In 1951-2 a Union Health Centre at Bagdogra was opened. In 1953 a 10-bedded Health Centre at Matigara was opened in February and another 10-bedded Health Centre was opened at Kharibari in March. This District Administration is trying to extend medical facilities to remote rural areas with the help of the Darjeeling Improvement Fund.

The Indian Red Cross Society opened in 1953 an Out-door Medical Unit at Samthar, an out-of-the-way village in Kalimpong subdivision. As soon as a Rural 10-bedded Health Centre is set up at Samthar this Out-door Medical Unit will be transferred to Nimbong.

The Darjeeling urban area contains the most important medical and health institutions in the district. First, there are two sanitariums built to accommodate on moderate charges those who desire to recruit their health by rest and change as well as those whose health has been definitely impaired. The Eden Sanitarium occupies part of the building in which the Eden Hospital is housed and accommodates 70 persons who live in European style. The Lewis Jubilee Sanitarium was started in 1887 with a generous gift of the Bryngwyn property by the Maharaja of Cooch Behar and donations of Rs. 90,000 made by the Maharaja of Tajhat and others. It now provides accommodation for 192 persons living in Indian style, including 8 phthisis patients in a separate ward. Free accommodation is available for 23 persons whom the Committee finds unable to pay the usual fees.

The Victoria Hospital has 70 beds for male patients and 36 beds for female patients. It has got 4 Medical Officers, 24 Nurses, 2 Compounders, 3 Dressers and 1 minor X-Ray set which is being installed. The Eden Sanitarium and Hospital is a non-Government institution mainly subscribed

by the Planters' Association. It has 10 beds, three Medical Officers, 4 Nurses and 1 Compounder. This Hospital has a major X-Ray set, Electric Diathermy and Electric Vibrator Apparatus and carries out X-Ray works for other hospitals in the district. There is a registered and qualified Nursing staff of 1 Matron and 3 Nurses. They are all provided with free board and lodging. The Matron is appointed for continuous service throughout the year: the Nurses are ordinarily appointed for a period of 8 months. The Government has approved a scheme of amalgamating the Victoria and Eden Hospitals by enlarging the number of beds to 208. Already the work of expansion is in progress.

Kurseong Subdivisional Hospital—This is a State managed Hospital containing 50 beds of which 29 are for males, 19 are for females and 2 are paying beds. The Hospital is divided into 5 wards:

- (a) General, which admits medical, surgical and female cases; the number of beds being 12 male and 6 female;
- (b) tuberculosis wards; which contains 15 male beds and 5 female beds;
- (c) isolation, which contains 2 male beds and 2 female beds;
- (d) maternity, which contains 6 female beds.

The Maternity Ward was opened in May 1952 and has been very popular. There are 2 Medical Officers, 10 Nurses, 1 Compounder and 1 Dresser.

Siliguri Subdivisional Hospital—The Siliguri Subdivisional Hospital is a State managed institution containing 56 beds of which 25 beds each are for males and females and 6 for infectious cases. There is a staff of 1 Medical Officer, 13 Nurses, 2 Compounders and 1 Dresser. A new two-storeyed building has been built along with staff quarters. Before July 1953, it had only 28 beds.

Charteris Hospital at Kalimpong—The Charteris Hospital was opened in 1893 and has been maintained ever since by the Church of Scotland Mission. The Mission medical work in this area, which includes this hospital, a Leper Hospital in Kalimpong, a dispensary in the Kalimpong bazar and outdispensaries at Nimbong and Today Tangta, is controlled by its Kalimpong District Committee. The management of the Charteris Hospital is conducted by Committee consisting of the doctors and sisters working in it together with the Subdivisional officer *ex-officio*. The hospital consists of three main blocks—Medical, Surgical and Maternity and Isolation and a small block of private rooms. It is a general hospital for men, women and children.

The hospital trains Nepali, Lepcha and Tibetan girls in general nursing and midwifery and prepares them for the examination of the

Bengal Nursing Council. Boys are trained in compounding and dispensing. The hospital staff includes two European and two Indian Doctors, 3 nursing sisters, 3 Indian staff nurses, 18 probationers, 3 trained compounders and 2 apprentice compounders. Quarters are provided for the staff.

The Church of Scotland Mission finances the hospital aided by grants from Government of Rs. 5,400 and Rs. 350 per annum; Government also provides free, the services of the two Sub-Assistant Surgeons.

The hospital has 262 beds, 150 for males and 112 for females. This includes 110 beds for lepers. The staff consists of two British doctors and two Indian doctors (who are Government servants attached to the hospital), a Matron and a sister (both British), an Indian sister and six staff nurses, 22 nurses in training housed in two Nurses Homes, 2 Compounders and 2 dressers and 1 X-Ray machine belonging to the local Tuberculosis Association. For the training of nurses the Government makes a contribution of Rs. 8,208 per annum. The Government also makes a capitation grant of Rs. 8 per month per adult leper and Rs. 4 per month per child leper up to a maximum of 100 leper patients. Leper patients come from Kalimpong and Darjeeling, Sikkim, Tibet and Bhutan. The staff consists of two compounders specially trained in leprosy work, working under the supervision of one of the missionary doctors.

The S. B. Dey Tuberculosis Sanatorium at Kurseong was established in 1936 through the munificence of Rai Bahadur S. B. Dey. The hospital was opened in 1937 with 20 beds. Before long the need for further expansion was felt and a Female Ward and a few cottages were built in 1939 to bring the total number of beds to 47. This was possible through public donations.

In 1942, the Government leased out on nominal rent 20 acres of adjoining forest land for further expansion and Mr. Casey, then Governor, after a visit to the Sanatorium in October, 1944, persuaded the Government to make a non-recurring contribution of Rs. 3,70,000 in 1945.

In 1946, 4 more cottages were added to augment the total number of beds to 58, made possible by public contributions.

Owing to the scarcity of building materials, as a result of the Second World War, the major step of constructing a 100-bedded hospital had to be put off. The time, thus gained, was utilised in preparing plans, and in 1949, the foundation stone of the new administrative-cum-surgical blocks was laid by the Governor of West Bengal.

The spacious, well-lighted and well-ventilated 3 storied modern hospital building was completed in 1951. It was formally opened on the 20th May, 1952. The cost exceeded Rs. 10,00,000 and landed the institution into heavy debts. The Government

of West Bengal contributed Rs. 1,50,000 and Rai Bahadur S. B. Dey again came out with a generous donation of Rs. 50,000. Thanks to philanthropic spirited donors, all the money was found and the last instalment of debt was cleared in July 1953.

With the ever-growing demand for beds, all the available space in this New Building had to be utilised to accommodate patients and the Sanatorium has today 172 beds, out of which 25 free beds are maintained exclusively for hillmen patients of the Darjeeling district out of its own funds which was a condition precedent laid down by the Government before Rs. 5,20,000 was granted. Seven other free beds are also maintained for non-hillmen patients and another 15 half-free for all.

The Sanatorium does not receive any recurring grant from the Government of West Bengal. The Hospital has a major X-Ray set.

In addition to the above, the following authorities maintain free beds in this institution:

Governor of West Bengal	..	1 free bed (exclusively for a hill girl)
Eastern Railway	..	2 free beds (for their employees)
North Eastern Railway	..	2 free beds (for their employees)
Siliguri Municipality	..	2 free beds (for the citizen of Siliguri)
Western Dooars Medical Association	..	1 free bed (for their employees)

Besides the above, another 30 patients are treated at the expense of their employers.

The year 1952 has been eventful in various ways. The Operation Theatre was equipped during the year for major surgery at a cost of over Rs. 40,000, mostly donated by the public and ex-patients. During the year, 30 Thoracoplasties were successfully undertaken. In the year 1953 up to the month of September, 35 operations were performed including two cases of Polythene Plombage. Arrangements for opening a Blood Bank are well under way and before long it is hoped that other operations such as Pneumonectomy and Lobectomy will be undertaken here.

The Sanatorium is a branch of the K. S. Ray T.B. Hospital, Jadabpur.

The Sanatorium has so far incurred a capital cost of over Rs. 14,00,000 which has been met by grants as follows:

	Rs.
Government of Bengal	... 5,20,000
Rai Bahadur S. B. Dey	... 1,80,000
Public donations	... 7,00,000
Total	... <u>14,00,000</u>

The medical amenities available in tea gardens are set out below. The first statement relates to amenities available at tea gardens affiliated to the Indian

Tea Planters' Association and the second relates to those affiliated to the Indian Tea Association.

MEDICAL FACILITIES AVAILABLE IN TEA GARDENS OF DARJEELING

A—Tea gardens affiliated to the Indian Tea Planter's Association

Serial No.	Name of Garden	Number of Hospital Beds	Number of Compounders	Number of Midwives	Number of Nurses	Number of Doctors			Total amount spent on medical facilities including medical establishments, medicines, hospital expenses, sick attendances, etc., including sick hazira				
						Qualified	Un-qualified	Anti-malaria					
Sadar Subdivision											Rs.	a.	p.
1	Lehong and Mineral Spring Tea Estate	Nil	2	Nil	Nil	1	Nil	Nil	3,124	3	6		
2	Oaks Tea Estate	Nil	1	Nil	Nil	Nil	1	Nil	2,073	3	0		
Kurseong Subdivision													
3	Ghyabari Tea Estate	..	..	..	..	1	Nil	Nil	1,649	5	6
4	Manjha Tea Estate	Nil	Nil	Nil	Nil	Nil	1	Nil	3,184	14	0		
5	Selim Hill Tea Estate	Nil	Nil	1	Nil	1	Nil	Nil	2,568	0	0		
6	Tindharia Tea Estate	Nil	Nil	Nil	Nil	1	Nil	Nil	2,840	0	0		
Siliguri Subdivision													
7	Ashapur Tea Estate	Nil	Nil	Nil	Nil	1	Nil	Nil	2,477	7	6		
8	Atal Tea Estate	Nil	1	5	Nil	1	Nil	Nil	6,693	15	0		
9	Bhojnarain Tea Estate	Nil	1	1	Nil	Nil	1	Nil	6,736	9	0		
10	Bijoynagar Tea Estate	8	1	1	Nil	1	Nil	Nil	8,921	9	6		
11	Chandmoni Tea Estate	Nil	1	1	1	2	Nil	Nil	9,375	0	0		
12	Dagapur Tea Estate	Nil	Nil	Nil	Nil	1	Nil	Nil	43	3	0		
13	Daulatpur Tea Estate	..	..	..	..	..	..	..	....
14	Doomoni and Kistapur Tea Estate	2	Nil	Nil	Nil	1	Nil	Nil	8,679	1	9		
15	Fulbari Tea Estate	Nil	1	Nil	Nil	2	Nil	Nil	13,153	6	6		
16	Fulbari Patan Tea Estate	Nil	1	Nil	Nil	1	Nil	Nil	3,741	6	6		
17	Gayagunga Tea Estate	Nil	Nil	Nil	Nil	1	Nil	Nil	8,104	7	3		
18	Kamala Tea Estate	4	Nil	Nil	Nil	1	1	Nil	12,404	7	6		
19	Kharibari Tea Estate	Nil	Nil	Nil	Nil	1	Nil	Nil	1,943	15	9		
20	Marionbari Tea Estate	Nil	Nil	Nil	Nil	1	Nil	Nil	6,281	4	0		
21	Matigara Tea Estate	Nil	Nil	Nil	Nil	1	Nil	Nil	5,016	0	0		
22	Morri View Tea Estate	Nil	Nil	Nil	Nil	1	1	1	8,859	1	3		
23	Mohurgong and Gulma Tea Estate	Nil	1	1	Nil	2	Nil	Nil	Including new Hospital expenses 42,661 12 0				
24	Nuxalbari Tea Estate	Nil	Nil	Nil	Nil	Nil	1	Nil		3,653	2	3	
25	Nischintapur Tea Estate	Nil	1	Nil	Nil	1	Nil	Nil	2,773	4	9		
26	Sannyasiathan Tea Estate	Nil	Nil	1	Nil	Nil	1	Nil	1,958	9	0		
27	Sukna Tea Estate	1	Nil	Nil	Nil	Nil	1	Nil	7,130	12	9		
28	Thanjhora Tea Estate	4	1	Nil	Nil	1	Nil	Nil	5,856	6	6		

B—Tea gardens affiliated to the Indian Tea Association

	Hospital Beds	Medical Officers	Midwives or Dais	Nursing Attendants	Com- pounders	Public or Mission Hospitals providing additional facilities when required
Rungneet . . . . .	..	..	..	..	1	Victoria Hospital, Darjeeling.
Phoobsering . . . . .	..	1	1	1	..	Ditto
Ging	2	1	..	..	1	....
Tukdah . . . . .	..	1	..	2	..	Victoria Hospital, Darjeeling
Ambootia	14	1	1	..	1	Kurseong Hospital
Bannockburn	8	1	..	..	..	Victoria Hospital, Darjeeling
Margaret's Hopo	10	1	2	2	1	Victoria Hospital, Darjeeling and Kurseong Hospital
Sungma and Turzum . . . . .	..	2	..	2	1	Victoria Hospital, Darjeeling
Tumsong	6	1	1	..	1	Ditto
Teesta Valley	14	1	2	1	1	Victoria Hospital, Darjeeling and Eden Sanatorium, Darjeeling
Pussimbing	10	1	1	2	..	Victoria Hospital, Darjeeling
Gielle . . . . .	..	1	1	..	2	Ditto
Mim . . . . .	..	1	1	..	2	Ditto
Dilaram . . . . .	..	..	..	..	..	Kurseong Public Hospital
Pashok	25	1	1	3	1	Victoria Hospital, Darjeeling and Charles Hospital, Kalimpong.
Darjeeling Tea and Cinchona	13	1	3	..	2	Victoria Hospital, Darjeeling and Thana Health Centre, Tukdah
Lingia . . . . .	..	..	1	1	1	Victoria Hospital, Darjeeling
Glenburn	14	1	..	1	1	Ditto
Nagri Farm	10	2	1	2	1	Ditto
Soom	6	1	..	1	..	Ditto
Tukvar	40	1	6	..	3	Ditto
Balasun . . . . .	..	2	1	..	1	Ditto
Murmah . . . . .	..	2	1	..	1	Ditto
Gyabaroo . . . . .	..	2	..	5	1	Kurseong and Darjeeling Hospitals
Ringtong and Hope Town	12	2	1	2	1	....
Singbulli and Tingling . . . . .	..	2	2	..	..	Kurseong Hospital
Badamtam	20	1	1	2	3	....
Tukvar	14	1	1	1	1	Victoria Hospital, Darjeeling, and Darjeeling and Douars Medical Associa- tion
Barnesbeg	12	1	1	..	1	Victoria Hospital, Darjeeling
Moondakoteo	8	3	1	4	..	Ditto
Nagri	6	2	..	..	1	....
Chongtong	9	1	..	3	1	Victoria Hospital, Darjeeling
Dooteriah	8	1	1	..	2	Ditto
Kalej Valley . . . . .	..	1	..	..	1	Ditto
Phuguri	6	1	..	2	1	Ditto
Solimbong . . . . .	..	1	..	..	1	Ditto
Thurbo	8	1	2	4	1	....
Poobong . . . . .	..	1	1	1	..	Victoria Hospital, Darjeeling
Seeyok . . . . .	..	1	..	..	..	Ditto
Okayati . . . . .	..	2	..	2	..	Ditto
Runglee Rungliot	6	1	..	2	..	Ditto
Singoll	19	1	..	1	1	Victoria Hospital, Darjeeling, and Kurseong Hospital
TERAI						
New Chumta . . . . .	..	2	1	1	..	Siliguri Hospital
Tirrihannah	12	3	2	1	..	....
Bagdogra	8	1	..	1	..	Bogibheta Mission Hospital and Govern- ment Hospital, Bagdogra
Singhiahjhora . . . . .	..	1	..	1	..	Ditto
Taipoo . . . . .	..	2	1	1	..	....
New Terai	14	2	1	3	1	Siliguri and Darjeeling Government Hospitals
Pahargoomiah	28	2	2	4	1	Siliguri Government Hospital
Gungaram	10	3	2	2	1	....
Old Terai . . . . .	..	2	1	1	..	....
Putinbari . . . . .	..	2	1	1	..	....
Hanaqua . . . . .	..	2	1	1	..	....
Belgachi	2	1	..	..	..	Siliguri Hospital and Jalpaiguri General Hospital
Lohagarh . . . . .	..	1	..	..	1	....

AGRICULTURE

The physical geography of the district makes conditions for agriculture extremely diverse. The Terai, from the foot of the hills to the southern boundary of the district, is in the plains and contains many level stretches of alluvial soil admirably suited for rice cultivation. There are however in it considerable areas of poor sandy ground and the river beds are large and generally unfertile or unsuitable for cultivation. In the hills, many of the slopes are so stony and precipitous that nothing can thrive on them except scrub jungle or an occasional tree in the crevices of the rocks. Much of the hill land is unsuitable for cultivation of any kind, but on the gentler slopes the soil is often of wonderful fertility. Altitude and aspect, as might be expected, have important effects on agriculture. No part of the district lies above tree level but no crops are grown above 9,500 feet above sea-level owing to the cold. Potatoes can be grown up to that height but the upper limits for rice, maize and millet are much lower. Tea does not grow above 7,000 feet. Below about 2,500 feet much of the ground is steep and unsuitable for cultivation: the temperatures here are too high to suit many of the crops growing in the colder altitudes and the result is that between 1,000 and 2,500 feet there is comparatively little cultivation and most of the area is under forest. Rainfall varies considerably from 60 inches per annum in some parts of the Tista Valley in the north of the district to over 200 inches on the outer slopes of the hills. Further south in the Terai the annual fall goes down to about 120 inches: nowhere in the district is rainfall in such defect or so irregular that outturn of crops is seriously affected. Landslips and river erosion do harm locally to cultivated areas. So also does hail. In the south of the Terai a hot parching wind from the west sometimes blows for a day or two in the hot weather and causes some damage to tea and other crops. But on the whole weather conditions are, with few exceptions, favourable to agriculture throughout the district.

Agricultural methods in the Terai follow closely the practice in the plains of Bengal. Fields are manured with cowdung, farmyard manure and sometimes silt from the beds of tanks. Irrigation is perhaps more common as the slope of the land offers many opportunities for utilising the water of the numerous small streams. Sixty per cent. of the low land on which the winter or *haimantik* rice is grown thus gets the benefit of irrigation. The aman or winter rice is first sown broadcast in nurseries in May or early June after the first rainfall. The fields to which the seedlings are transplanted in July or August have in the meantime been heavily ploughed and surrounded by *ails* to keep in the rain and later irrigation water is led to them by channels (called *pairis*). The *Aus* or *Bhadoi* rice is grown on higher land called *faringati*. For this crop, ploughing begins in February and is repeated five or six times. The field is then levelled, weeds and clods burnt and the ashes used for

manure. Seed is sown broadcast and after germination of the seed the field is carefully weeded. This rice crop is reaped in August. Small areas are also cultivated with *Boro* and long stemmed rice.

Methods of cultivation in the hills vary with the crops to be grown. The chief food crops in dry cultivation (*Sukhakhet*) are maize (*bhatta* or *makan*), millet (*marwa* or *kodo*) and buck-wheat (*phaphar*) and in wet cultivation rice. Money crops are cardamoms (for which irrigation is needed), potatoes, oranges and vegetables. Land which is not too steep is ploughed; otherwise hoes (*kodalis*) are used. Weeding and harvesting are generally done by the cultivator and his family and with the assistance of neighbours for which help is given in turn to them. This labour exchange system is called *parma*. Hired labourers are only employed when absolutely necessary. Daily rates for day-labourers pre-war were about four annas but war time rates rose to one rupee. A recent Government notification has fixed the minimum wages for agricultural labour in the district for men, women and non-adults. Irrigation is essential for rice growing in the hills and water has to be conducted from nearby streams (*ghoras*) by flumes or pipes of bamboo or galvanised iron. Terracing is a distinctive and important feature of Himalayan cultivation. There is no such thing as a large level field to be found in the hills: and to allow of the irrigation which is essential for rice, terraces have to be cut with great labour in the hillsides. Some of these are so narrow that a plough cannot be used and the hoe is the only instrument by which the soil can be broken up. Usually an attempt is made to give an inward slope to the terrace but that is not always possible. It is however required where rice is cultivated, as irrigation water has to stand on the field.

Aman paddy in the hills does not need manure as washings from higher land are brought to the rice field in the irrigation water. For dry cultivation manuring is almost essential. Cowdung is being ordinarily used for wheat, mustard, *marwa*, potatoes and more rarely for maize or buck-wheat. For vegetable culture leaf mould when procurable is employed.

The chief implements used are the plough, the hoe, or spade (*kodali*, *farwa* or *chapra*), the form (*kata*), the sickle (*hasra*), the mallet (*martol*) and the crowbar (*Jhampel*). A wooden harrow and a thick heavy beam are used in paddy fields and sometimes in dry cultivation to break up clods. There are also various chisels, *kukris* and Bhutanese and Lepcha knives or *chupees*: and baskets, mats, sieves and winnowing trays made locally from bamboo or cane. The *thunsi* and *namlo* is for winnowing grains. For storing grain in large quantities closely woven mats (called *bakhari*) are made in rounded form from bamboos covered with a paste made from cowdung and earth.

The average plough weighs 18 or 19 seers and is heavier than that in use in the plains due no doubt

to the stiffer soils met with in the hills. The beam is tied to the yoke with a leather rope and the whole plough used to cost only Rs. 2 at most. This has risen now to Rs. 8. It is expected to last a whole season for 7 to 10 acres of land. Wartime prices of other implements are spades Rs. 3-8, fork Rs. 12, sickle Re. 1-4, mallet Rs. 14 and crowbar Rs. 7-8. Some implements last longer than others and the average annual cost for implements for an ordinary hill cultivator would be about Rs. 25.

More intensive and efficient methods of cultivation are becoming popular. While formerly a single ploughing was thought sufficient and no manuring, now most cultivators plough twice, manure more freely and sow better seeds more efficiently: weeding, hoeing and earthing are often repeated. Men, women and children all use the hoe: where ploughing cannot be done, seeds are sometimes sown broadcast or dibbled in with a long stick either pointed or with an iron spike fixed at the end. Lepchas are ineffective users of the plough and are sometimes seen turning over the soil with a rude wooden stick and are ready to cultivate with a small spade and a spike. They cultivate mostly at the lower levels and are particularly fond of orange growing and cardamom cultivation in the lower valleys, being accustomed to a low elevation: the comparative seclusion of fields surrounded by jungle is congenial to their habits. The Nepali is the most assiduous cultivator leaving practically no part of his holding uncultivated, using his plough cattle to the full and terracing skilfully where it is feasible. Bhutias and Nepali Gurungs are more casual cultivators, perhaps because they are descendants of pastoral races more accustomed to grazing: they are for the same reason fonder of cultivating at the higher level.

The following are brief accounts of the cultivation of the more important crops in the hills. The prices quoted are wartime prices up to 400 per cent. over pre-war prices.

Maize (bhutta or Makai): This crop grows on almost any soil at altitudes between 1,000 to 7,000 feet above sea-level. Black soil suits it best as hill cultivators do not usually manure this crop. It does best at low elevations in sunny aspects and grows quite well in places where rocks retain moisture. It is the staple food crop for cultivators and is grown on dry land (*sukhakhet*). After the ground has been prepared, the seeds are sown from February to April either by broadcasting, by sowing in rows (*phalis*) or by individual planting in holes. It is harvested in August or September. The crop is liable to damage by bears and elephants when near forests and to dangers from landslips on steep slopes. Outturns vary from 4 to 10 maunds per acre and higher with heavy manuring: taking the average yield at 8 maunds per acre and the price at Rs. 15 per maund, net profit per acre can roughly be taken at Rs. 60; cost of cultivation being rent Re. 1, manure (20 maunds) Rs. 5, seeds (16 seers) Rs. 8, ploughing Rs. 15 and labour

Rs. 34. Soya bean (*bhotmas*) or millet is sometimes grown with maize, and buck-wheat (or more rarely wheat and mustard) follows it on first and second class lands. It is found difficult to keep strains of better maize pure owing to cross fertilisation.

Millet (marwa or kodo): This crop is grown at heights between 1,000 and 5,000 feet above sea-level and in dry cultivation (*sukhakhet*). Seeds are sown in April and May in a nursery which is manured. Transplantation takes place in June or July and the crop is harvested in October or November. The cost of a seed bed for one acre of transplanted *marwa* is about Rs. 7-4, the bed being about 1/5th of an acre. The transplanted crop is not usually manured. Outturn varies from 5 to 8 maunds per acre (average perhaps 6 maunds) when the crop is grown alone and less (say 5 maunds per acre) when it is grown together with maize. At a price of Rs. 16 per maund the profit per acre works out at about Rs. 50 in either case.

Soya beans and pulses are similarly cultivated.

Buckwheat (phaphar): This is grown up to 7,000 feet in dry cultivation. It is sown in August and September and harvested in December and January. The average yield per acre is about 6 maunds and, with a price of Rs. 16 per maund, the profit per acre is about Rs. 68. No weeding is required so that labour costs are low, say Rs. 18 per acre, for which half a maund of seed is required. This crop is quick growing but rather unpopular because it is considered to exhaust the soil rapidly.

Wheat, barley and mustard: These crops are not extensively grown in the hills. They are grown up to 5,000 feet in dry cultivation, are sown in September and October and harvested in the later winter.

Rice: Paddy is grown from plains level up to elevation of 5,000 feet. In the hills it is transplanted into irrigated land (*panikheth*) and no manuring is needed. Seeds are sown in seed beds (1/6th of area to be planted out) in April or May: transplantation takes place in July or August and harvesting in November or the beginning of December. Outturns vary from 8 to 12 maunds per acre and 10 maunds may be taken as the average in the hills although in the Terai double this figure may be attained. The yield of straw is heavy (25 to 35 maunds per acre) and profit reaches Rs. 45 per acre with 24 to 32 seers of seed required per acre and about Rs. 75 per acre as the cost of labour. The price per maund of rice is taken for the above calculation at Rs. 13 per maund. A small quantity of *bhadori* rice (called *ghiya*) is grown in the hills. Seed is either sown broadcast or dibbled in rows at the rate of 20 to 35 seers per acre. Manure is required and good rain. The crop is harvested at the end of August or beginning of September. Outturn is less than that of the transplanted rice.

Potatoes: This crop is grown in many parts of the district even as high as 8,500 or 9,000 feet above sea-level. It is grown in dry cultivation but requires heavy manuring. In some places two crops are harvested, one planted in October and harvested in January and February and the second planted in January or February and harvested in July. The success of potato cultivation depends a great deal on the weather: yields vary from 30 to 120 maunds per acre, even reaching 150 maunds per acre in very favourable conditions. Profit varies considerably but, with a price of Rs. 15 per maund, one acre may give a profit of Rs. 300 or more. Costs of cultivating an acre may be as much as Rs. 300, with 100 maunds of manure and 10 maunds of seed potatoes being required. The district produces seed potatoes for export as well as potatoes for consumption as food.

Cardamom (*clauschi*): This crop is a valuable one, doing best at altitudes from 1,000 to 5,000 feet above sea-level. The crop requires a rich soil, shade, some warmth and a good supply of irrigation water. Fields are usually in the beds, or on the sides, of streams and are liable to destruction by floods and landslips. The crop is harvested usually from September onwards. For a new plantation seed is sown in special seed beds and then transplanted in May and June two to four feet apart. It can also be propagated by separating roots from old standing clusters. New cardamom fields have to be thoroughly weeded and for the first two years they yield no crop. In the third year a half crop is obtained and thereafter for about 8 years a full crop can be expected which amounts to about 6 maunds or more of the prepared cardamom per acre. After the tenth year the plants weaken and become liable to blight or damage by insects (*phurkey*). Cardamoms flower from the middle of April to the end of May and after September when the crop is harvested the seed-pods are dried in a kiln (*bhati*) and thereby are much reduced in weight. The dried seeds are bagged and sold at prices upwards of Rs. 30 per maund. Prices soar when supply is short and sometimes reach Rs. 120 per maund. It is difficult to calculate the cost of cultivation and consequently the profit, because most of the cost of cultivation is that of labour which is usually obtained not for cash but for on the *parma* system of exchange labour. Moreover, prices of the finished product vary erratically. It is however a crop which can give a very high return of profit.

Other field crops: Only small quantities of sugarcane are grown in the hills: a soft thick variety is grown in small quantities for chewing. Mustard is grown near towns by Brahmans and Chettris in small quantity for oil and cake.

Fruit cultivation: Orange-growing is extremely profitable and has for this reason expanded very considerably in recent years. About 90 per cent. of the output is exported. Two varieties of the local Sikkim orange are grown—one a small tight skinned

variety and the other a loose skinned, larger and softer kind. Rich black soil is required and an elevation of between 2,000 and 4,000 feet above sea-level. The crop is harvested from November to January. Seedlings, brought from Sikkim, are transplanted in May and June 14 to 18 feet apart. About 200 are required per acre. About 8 years are required before the trees begin to bear fruit and they continue to give a good crop for 25 years. Trees grow from 15 to 20 feet high and give larger fruit farther apart they are. The outturn per tree is from 800 to 1,000 oranges annually which sell at a varying price which may be taken as Rs. 20 per 1,000 fruit. The cost of cultivation is not heavy, the main items being initial cost of seedlings including transport from Sikkim, Re. 1 each = Rs. 200 per acre, initial cost of manure per acre Rs. 6-4, and Rs. 150 per acre every 3 year for manure. The crop is comparatively free from damage by bad weather.

Pine-apple growing is successful in the Terai and the hill areas. There is a considerable export of the fruit and 5 to 6 lakhs of suckers are sold annually to growers in the plains. The Singapore Queen variety grows well up to 4,000 feet and is in good demand. Local markets are well supplied in the appropriate seasons with tree-tomatoes, limes, lemons, bananas, pears, peaches and plums grown in the district at varying altitudes. The heavy rainfall and moisture prevents apples and good quality pears and peaches being grown successfully.

Vegetables: A very profitable vegetable growing business supplies both local and distant markets. Peas, beans and potatoes are well known products of the district but all kinds of foreign vegetables are grown for local and Calcutta markets among which can be mentioned artichokes, asparagus, beet-root, Brussels-sprouts, broad beans, French beans, cabbages cauliflowers, celery, carrots, turnips, knol-khols, radishes, parsnips, peas, spinach, leeks, tomatoes, rhubarb and onions as well as many herbs. The season for many of the above vegetables is long because it is possible to grow them over a considerable range of altitude. Rainy season vegetables are also grown throughout the district in great variety and profusion.

There was so little cultivation before the British administration arrived that it can almost be said that all the crops, fruits and vegetables grown in the district have been introduced and acclimatised.

Departmental activity has been mainly confined to demonstration work in the Kalimpong Farm and to popularising improved varieties of seed and agricultural methods. A demonstration farm at Mirik was not successful and had to be closed. An investigation into the marketing of oranges has been carried out but no action to improve it has yet been undertaken. Certain war-time measures to control the export of oranges and vegetables have been organised. Some damage to crops occurs from wild animals and birds which cannot be

prevented where forests adjoin cultivation. But the Department has not been able to do much to counter pests attacking the crops of the district.

The following table gives a statement of the employment of land in the Darjeeling district and the distribution of the crops:

Table of Land Employment in 1951-2

	Acres
Area of the District	767,808
Total area not available for cultivation (current fallows, culturable area other than current fallows, and area not available for cultivation)	116,313.82
Area not available for cultivation (uncultivable waste.)	96,530.87
Culturable area (cultivable waste and current fallows.)	48,442.37
Current fallows	6,858.72
Total area sown	278,241.84
Dofasli	33,840.87
Net area sown	281,212.48
Area under Bhadoi crops	84,120.70

	Acres
Area under Aghani or Aman crops ..	83,014.20
Area under Rabi or Kharif crops ..	15,770.92
Others, e.g., mango, tea, pan, plantain, guava, etc.	182,475.55

Statement of Crops

	Acres
Area of Aus rice	349.48
Area of Aman rice	61,789.20
Area of Boro rice .. ..	..
Area of wheat	160.43
Area of barley	389.83
Area under gram (pulses)	1.10
Area under other food-grains including pulses	92,212.94
Area under linseed .. ..	..
Area under til or sesamum .. ..	..
Area under rape and mustard	2,576.53
Area under sugarcane	226.25
Area under fodder crops (joar and Kalai)	1,562.92
Area under potato	4,434.06
Area under orchards	4,948.13

The following account of the varieties of crops and the diseases they are liable to, has been kindly furnished by the Superintendent of Agriculture, Darjeeling:

List of the local names of the various kinds of crops, their diseases and insect attacks thereof in the Darjeeling district

1 Various kinds of rice :

- | | |
|----------------|--|
| (a) Boro | .. Nil |
| (b) Aus | .. Bhadoi (black) |
| (c) Aman | .. Kalam, Sudanunia, Kalonunia, Sonakauri, Budsabhog, Buchi, Malsara, Swapandari, Kukurjali, Tulapanji, Dhumsi, Kakowa, Dadkhani, Krishnabhog, Rantulsi, Baramphul, Subarna, Jhapaka, Charinangri, Anandi, Thapachini (Chinithapa), Addeynarshi, Timburey, Dudraj, Artay, Jashoda, Rambhog, Damasey, Kalomarshi, Takamaru, Darmali, Juari, Tauli, Radua, Dorakha, Champasari |

2 Jute :

- C. Olitorious :
- (1) Chinsurah Green
 - (2) Japoni Pat
 - (3) Belun Pat
- C. Capsularies :
- (1) Kakiya Bombai (D.154)
 - (2) Fanduk
 - (3) Hewti

3 Sugarcane :

Deshi, C. O. 421

4 Insect pests and diseases :

Crops	Insect pests	Diseases
Paddy	Rice Hispa (Hispa armingera (01), Rice stem borer (Schaeonobius incertellus)	Leaf spot (Helminthosporium oryzae)
	Rice bug (Leptocoris acuta) ..	Rice blast (Piricularia oryzae)
	Rice grasshopper (Hieroglyphus banian)	
	Rice cut worm (Cnephia albistigma)	
	Paddy leaf roller (Cnephlocrocis medialis)	

List of the local names of the various kinds of crops, their diseases and insect attacks thereof in the Darjeeling district—concl'd.

Crops	Insect pests	Diseases
Jute	Jute semi-loopor (<i>Cosmophila subalifera</i>) Jute mite (<i>Metatetranychus biomaculatus</i>)	Nil
Sugarcane	Sugarcane top shoot borer (<i>Scirphophaga nivella</i> F.) White ants (termites) (<i>Odontotermes obsus</i>)	Red rot of sugarcane (<i>Colletotrichum falcatum</i>)
Vegetables (potato, cabbage, cauliflower, etc.)	Cut worms (<i>Agrotis</i> sp.) Diamond black moth (<i>Plutella maculipennis</i>) Fruit fly Lady bird beetles (<i>Epilachna</i> sp.)	Early blight (<i>Alternaria solani</i>) Late blight (<i>Phytophthora infestans</i>) Club root (<i>Plasmodiphora brassicae</i>) Foot rot (<i>Rhizoctonia solani sclerotium rolfsii</i>)
Fruits	Orange bug (<i>Rhichoria humeralis</i>)	Foorkey disease (Viruses)

A brief account of the activities of the Department of Agriculture in recent years will not be out of place. As everywhere else in West Bengal the Department persuaded private cultivators and managed to set up 11 Demonstration Centres each of 5 acres in which modern and improved methods of cultivation, seeds, manures, and implements are demonstrated on cultivators' lands. The Department made headway with small irrigation schemes and in 1952-3 executed 17 schemes at a cost of about 48,000 rupees, the total area benefited by those schemes being about 1,912 acres estimated to yield additional crops of about 2,214 tons. Active help was rendered in the reclamation of waste lands and in 1951-2 a total of 185 acres of waste lands was reclaimed in Siliguri, Kurseong and Darjeeling subdivisions, of which 35 acres in Siliguri were reclaimed with the help of tractors. In 1952-3 about 364 acres of culturable waste were reclaimed by private enterprise of which 290 acres were reclaimed in Darjeeling. In Siliguri subdivision about 72 acres of jotedars' lands were reclaimed by departmental tractors. The Department is encouraging the making of village compost and is actively pursuing the distribution of improved seeds and seedlings together with manures, fertilisers and improved ploughs. One of the most interesting activities of the Department in Darjeeling is the organisation of annual Agricultural and Live-stock Exhibitions in places like Pedong (Kalimpong subdivision), Matigara (Siliguri subdivision), Bijanbari and Sonada (Darjeeling subdivision) and Kurseong. Darjeeling being one of the biggest growers of what are called English vegetables in Eastern India, one of the most important activities of the Agriculture Department is the raising and distribution of vegetable seedlings like cauliflower, cabbage, beans, tomato, peas, carrots, radish, beet, brinjal, onion, etc. It is estimated that every year more than one million seedlings are distributed to growers.

Special attention is paid to the cultivation of potato. Darjeeling together with Tarakeswar in Hooghly is almost the only source of good potato seeds in West Bengal. The Darjeeling red round variety of seed is eagerly sought after both for quality and yield. There is a State Agricultural Farm at Kalimpong with an area of 74 acres which grows potato seeds but the most important farm is the Rungbull Farm a little below Ghoom which has a gross area of 150 acres of which about 111 acres are put under potato and vegetables. Besides there is an experimental and trial station at Bhanjang situated 2½ miles from Ghoom Railway Station, Ghum-Sukhiapokri Road. This is a farm of 5 acres. The potato that is grown in this farm is not only marketed for consumption but great quantities of it are shifted to various districts for sowing as also to the Central Cold Storage Plant at Kidderpur in Calcutta for preservation as a ready stock of seed.

Veterinary and Animal Husbandry—In the Terai, domestic animals do not differ appreciably from those found elsewhere in the plains of Bengal. In the hill subdivisions, however, there are considerable differences. The cattle population of the district, according to a census held in 1951, was 145,400. The density is not heavy. In the hills bullocks are not so commonly found as the hillman does not usually castrate bulls. In the Terai, cattle are of usual inferior plains breed, although perhaps, as they get better grazing, they are stronger and better nourished than the average plains cattle. Breeds in the hills are mixed, although animals of pure Siri or Nepali breeds are occasionally met with. Climate and feeding conditions in the hills make for stronger and healthier cattle.

Siri cattle are large handsome animals standing 50 to 54 inches at the shoulders. The bulls have well developed humps and both sexes have a long tail

with a tuft of hair at the tip. They are rough coated, sure footed, move well on steep hillsides and are hardy in the cold moist climate. They need good grazing and perhaps for lack of this, pure bred animals have disappeared into the remoter parts of Sikkim and Bhutan. They are however still found in the district on the Nepal frontier in the north-west. The Siri cow gives about six seers of high class rich milk per day with 10 per cent. fat content and their average lactation period is over eight months. Cross breeds from Siri cattle are common and give yields of 10 to 16 seers per day of milk inferior in quality to that obtained from the pure Siri or pure Nepali cow. This higher milk yield of the cross bred animals is an additional reason for the disappearance of the pure bred Siri cattle.

The Nepali breed is smaller than the Siri, bulls measuring 45 inches and cows 40 inches at the shoulder. They are smooth coated, have a thick neck and a small hump. Although they have short legs and poor joints, they are agile on rough steep ground and forage well on poor grazing ground. Cows give two to three seers daily of excellent milk with high fat content. The Siri Kacchar is a cross of the Siri with the Nepali animal intermediate in size and giving about 6 seers per day of high quality milk. The Bhutan or Mithun breed is found mainly in the Kalimpong subdivision, having a strain of the wild cattle originally found in those parts. They are powerful animals well suited to the damp and cold of the high altitudes. They yield 3 or 4 seers of rich milk.

Much of the stock of professional graziers is poor and this is mainly due to promiscuous breeding. The District Board has maintained a dozen stud bulls but these are inadequate for real progress and not all their stud bulls are suitable. About 30 years ago a number of persons interested in live-stock imported Ayrshire, British Friesian, Jersey and Shorthorn animals. The result of crossing these with local breeds has been an immediate increase in the average yield of milk. The progeny are neither so hardy or so capable as draught animals and they are suitable mainly for indoor feeding. The subsequent progeny is apt to deteriorate and this indicates that more care in the control of breeding is essential. Hill people take good care of their cattle but pasture is often short rendering stall feeding necessary. Green fodder grass is plentiful from June to November: rice and millet straw are available after the harvest of these crops and from December to May animals are fed with green leaves from lopped tree branches. Even stall fed cattle therefore get fresh fodder in good quantity. Grazing is allowed under control in certain reserved forests and there are also extensive village grazing grounds in various parts of the district. Hillmen are apt to keep cows in milk in confinement owing to a superstition that if they go into the open they will be affected by the evil eyes. This practice has a detrimental effect on the health of herds.

Rinderpest, foot-and-mouth disease, tuberculosis and haematuria are common in the hills. Much disease is brought about by the migration of herds from the neighbouring countries of Nepal, Bhutan, Sikkim and Tibet into the district. It has been estimated that 20 per cent. of the cows of the district are infected with tuberculosis.

Buffaloes are not numerous in the hills and are mainly kept at the lower elevations. In 1951 there were only a total of 12,490 in the whole district. In the hills they are found costly to maintain, do not yield much milk and are little used for cultivation: females are kept for milk and males for slaughter. But practically 100 per cent. of the animals slaughtered are imported for the purpose.

There are two breeds of *pony* in the hill areas. The *Bhutia* pony is a sturdy surefooted animal, hardy and with easy action. It is imported from Bhutan, Sikkim or Tibet. The other type, called *Pantharay*, is bred in Nepal and in Sikkim near the district border. It is smaller than the Bhutia and is used for pack work whereas the Bhutia is used mainly for the saddle. The Pantharay is a hardy hardworking animal when properly fed and tended. Mules and donkeys are imported from Tibet and are also used for pack work. Horses, ponies and mules are often attacked by glanders and surra. There were about 1,964 horses and ponies enumerated in the district in the 1951 Census.

Sheep is sold at similar prices. The *Lampuchharay* sheep has a long tail and is found only in the Siliguri subdivision. The *Ghevshera* is a larger animal. The Gurungs graze large flocks of sheep, taking them to the heights in the rains and in the cold weather bringing them down to lower altitudes and the plains for sale. One variety of hill sheep, the *banpala*, has long pendant ears reaching below the jaw. About 60 per cent. of the sheep slaughtered in the district are imported for the purpose. In the 1951 Census only 4,134 sheep were counted.

Pigs are not very numerous and are only reared by a limited number of castes among whom are the Mangars, Rais, Limbus, Tamangs, Lepchas and Bhutanese. The total number recorded in the 1951 Census was 12,775. The plains pig is called *Hurra* by hill people who distinguish it from the *Purna* or the hill pig, the meat of which is superior. The ordinary hillman rears pigs in insanitary conditions but there are piggeries in the district breeding from imported Yorkshire and Berkshire animals some of which maintain adequate sanitary precautions.

There are two kinds of indigenous domestic fowls in the district, the Sikkimay and the Syakinay, the former being the larger bird. They have short legs and feathered toes. They are hardy, stand up well to local conditions and are less prone than other breeds to disease. Pullets mature early

and start laying at six months. They are good layers of large eggs, docile and can be easily reared within bounds. These breeds however are giving way to plains birds and foreign cross breeds. Plains birds are imported as they are cheap but their crossing with hill birds has led to deterioration. White Leghorns, Black Minorcas and Rhode Island Reds were imported by a number of persons interested in poultry farming but have been found delicate, not entirely suitable for local conditions and susceptible to diseases, a particular destructive one being the Ranikhet disease. Latterly attention has been paid to the improvement of poultry in the district and the Department has been distributing liberal quantities of Rhode Island Reds, cocks and hens.

The following is the veterinary staff and equipment in the district. Stationary Veterinary Assistant Surgeons in charge of hospitals are stationed at Darjeeling, Ghum, Kurseong and Kalimpong to treat non-contagious diseases, accidents and wounds of all animals and Itinerant Veterinary Assistant Surgeons with headquarters at Kurseong, Kalimpong, Ghum and Siliguri are responsible for the prevention and control of contagious and infectious diseases in the district. An Assistant Superintendent is in charge of a Veterinary Vaccine Establishment at Kurseong where pathological specimens are examined and rinderpest vaccine and other biological products are prepared. A Glanders Inspector has been posted to the district to deal with glanders, farcy and surra, scheduled under the Glanders and Farcy Act. Each Veterinary Hospital treats about 1,500 to 2,000 animals as out-patients and 300 to 400 animals as in-patients in the course of a year. Touring officers also treat a large number of animals and carry out propaganda on precautions against epidemics. These Touring officers are under the sole control of the Provincial Government but the others are under dual control of the District Board and of the Provincial Government.

The officers mentioned above work in close co-operation with the Darjeeling-Himalayan Society for the prevention of Cruelty to Animals which was organised in 1917 and, impelled by the energy of Mrs. Lennox and her daughter, both of Ghumti Tea Estate, the Society has continued effectively to prevent cruelty to animals and to secure them proper treatment and better conditions. The Society has an infirmary for sick and injured animals in Darjeeling, hospitals at Ghum, Kurseong and Kalimpong and dressing stations at Mirik, Pankabari and Sukhiapokri on the Nepal frontier. All poultry being imported into Darjeeling by rail is fed and watered free by the Society at Siliguri and Kurseong and for cattle moving up by road to Darjeeling the Society sells fodder and grain at cost prices. It has also devised a pack pony saddle based on an army model but costing only a small sum within reach of the poorest. In 1937 a veterinary hospital which carries out admirably the aims of the Society was erected in Siliguri through the benevolence of Mr. J. Goenka.

Darjeeling is on the whole a favourable area for the development of livestock on a commercial basis and for industries distributing animal products. A number of farms are well established among which Keventer's farm at Ghum is prominent. The farm was started in a very small way in the late 90's by Mr. Edward Keventer, a Swede, who had already farms in Calcutta, Delhi, Aligarh and Simla. A few Siri cows and a few Yaks were kept, but it was not until 1924 that the farm developed rapidly. Modern cattlesheds were built, up to date dairy machinery was installed, and the farm became able to produce first class pasteurised milk.

In 1935 a modern pig farm was started in conjunction with the dairy and English Middle White pigs and Australian Large White pigs were imported. The farm now breeds its own cattle and pigs, having over 200 cows and several hundred pure bred English pigs. Pedigree bulls and boars are frequently imported.

The farm now supplies daily to Darjeeling large quantities of pure pasteurised milk, excellent farm butter, cheese, ham, bacon, pork and sausages.

All stock is stall fed, the grain having to be imported from outside Darjeeling, while good use is made of the green vegetation growing in the hills near the farm which is cut daily for roughage feeding.

The staff employed on the farm in 1944 numbered nearly 200. In recent years its output has fallen and the staff is small.

The Kalimpong mela, an annual agricultural and livestock exhibition, was started by Dr. Graham in 1891. It has shown the way to many improvements and has made Kalimpong the headquarters of district departmental demonstrations.

NATURAL CALAMITIES

An account has been given of the occurrence of landslides in the district in an earlier section of this essay. Fortunately landslides are not frequent in Darjeeling district and in last 100 years only two disastrous landslides have happened, one on 24th September 1899 which occurred on the eastern side of Darjeeling town and was of the type known as schuttsturze.

The slow downward creeping movements of soil sometimes give place to sudden and violent landslips called Schuttsturze by the Swiss geologists. Such landslips may occur on slopes covered with thick soil and weathered rock and many affect hillsides of considerable extent. During his travels in the Lower Himalaya, Sir Joseph Hooker came across several enormous landslips. "The most prominent effect of the steepness of the valleys" he wrote, "is the prevalence of landslips which sometimes descend

for 3,000 feet, carrying devastation along their course: they are much increased in violence and effect by the heavy timber trees which sway forwards, loosen the earth at their roots and give impetus to the mass." As such landslips may take place without previous warning, loss of life and damage to property in inhabited areas may be appalling.

In June 1950 there occurred the more devastating series of landslides ever throughout the district. Between 11th and the 13th June of that year there was a heavy spell of rain after weeks of dry weather. In three days the rain gauge recorded 32.21" of rain. This resulted in an unprecedented series of bad landslides particularly in the Sadar subdivision; whole hillsides with buildings, farms and trees came down and several hundreds of people were rendered homeless. The loss of life reported from the district was 127 out of which 100 was in the Sadar subdivision alone. The town was cut off for about 5 days and the Siliguri-Kalimpong Railway line was washed away. Large portions of the Kurseong-Darjeeling Railway track were washed away, and the Darjeeling line was not relaid until late in 1951. The Siliguri-Kalimpong line was closed for ever as the hillside in that region was considered unsafe for railways. The other more important reason for closing down this line was the discovery that in the upper valleys of Sikkim the lakes which held the Tista had given way during the period as a result of which it was now more difficult than ever to predict the activities of this river, and more so to control the volume of water passing into its bed downstream. A Relief Committee was organised under the patronage of the Governor and prompt steps were taken to restore Darjeeling. Considering the magnitude of the damage inflicted on the district by the landslides of June 1950 and the difficulty of carting up rebuilding material, restoration work was completed surprisingly quickly and the old Military Road from Kurseong to Ghum via Chimney, Bagora and Senchal did a great deal to quicken the pace of recovery. It was a matter of no small satisfaction for the Government that at no time did the town of Darjeeling or any part of the district go without an adequate stock of food, a constant stream of supplies having been kept up in the teeth of great odds.

Earthquakes—Within living memory, the district has not fallen within the epicentral tract of a major earthquake affecting north-eastern India. But minor earthquake shocks, smart as well as mild, have been recorded from time to time since 1842. A sharp shock, felt on the 27th February 1849, caused many well-built walls to crack. Several shocks were felt between March and October in the year 1863. During the Cachar Earthquake of the 10th January 1869, smart shocks were recorded at Darjeeling,

Kurseong, Pankhabari and Siliguri. During the same year minor tremors were felt at Darjeeling between the months of March and August. Cracks appeared in several buildings at Darjeeling and Kalimpong during the Dhubri Earthquake of the 3rd July 1930.

The district was included within the higher isoseismals of the Assam Earthquake of the 12th June 1897 and the Bihar-Nepal Earthquake of the 15th January 1934. It was severely shaken on both occasions, the worst affected parts being Darjeeling town and its neighbouring spurs and the railway station at Tindharia. At Darjeeling a number of badly constructed houses totally collapsed. In many buildings cracks formed or walls fell out and bungalows were damaged by the fall of masonry chimneys crashing through roofs. Although the loose nature of the Darjeeling soil is partly responsible for much of the destruction by earthquakes, a noticeable feature of the 1934 Earthquake was that, in the area of maximum damage, ferro-concrete structures stood almost unharmed. So also were well-constructed recent buildings of brick or dressed stone. On this occasion, the top layers of the sub-soil on the crest of the Darjeeling ridge and its outlying spurs, mostly on the western side of the town, developed fissures damaging buildings.

The station building at Tindharia was damaged during the earthquake of 1897 and 1934. Landslips took place near Tindharia station soon after the earthquake of 1897 and a ground fissure, over 300 yards long, appeared below the station yard in 1934.

During the earthquake of 1934, Kurseong and Kalimpong escaped with minor cracks in buildings but landslips occurred at several places in the Tista valley below Kalimpong.

Serious damage to building has never been reported from Siliguri, but, during the earthquakes of 1897 and 1934, ground fissures appeared at several places in the submontane tract to the north, near and beyond Sukna, and the cart road was much cut up.

Famine—There have been no serious famines in the district.

Storms—Although normally wind force is small in all parts of the district, storms occur from time to time accompanied by heavy rainfall and winds of great force. Such a storm took place in September 1899 when in the 24 hours preceding 8 a.m. of 25th September 1899, 19.40 inches of rain fell at Darjeeling (the maximum fall during 24 hours recorded during 48 years). This followed heavy rainfalls on the 23rd and 24th September: these coming after an already heavy seasonal rainfall caused many disastrous landslips, loss of life and destruction

of houses, roads and property. The storm originated in a disturbance coming from the Bay of Bengal and the centre passed through the western part of the district close of Darjeeling and Pulbazar. Rainfall was much less heavy at Kalimpong and at Pedong only 7.58 inches were recorded. On the other hand 27.20 inches fell in the Happy Valley Tea Estate near Darjeeling and at Pulbazar the little Rangit rose from 30 to 40 feet and 67 deaths resulted. This flood was due to landslips upstream damming up water: when these dams burst, huge masses of water were projected into the river bed and caused an abnormal rise in river-level.

The Tista came down in a flood of unprecedented height and most of the houses in the Tista Bazar and the whole sections of the Tista valley road disappeared. Two thousand acres of tea and large stretches of forest were swept away: the most serious forest damage being in the Balasan river valley where three-quarters of the Balasan forest was destroyed. Very great damage was done to road and rain communications in the district and the stoppage of transport caused distress and soaring prices. The total loss of life in the district was 219 and in Darjeeling town 72 were killed (including 10 Europeans). Along the eastern side of the Mall was an almost continuous series of landslides.

Another cyclonic storm caused the destruction of the Kalimpong Subdivisional Court building in 1932. A heavy rainstorm in 1942 in the foothills (36 inches in 40 hours in some places) caused a large landslide which gave the railway authorities much trouble at mile 14. Minor storms of considerable intensity are not infrequent such as those which in July 1943 and July 1944 struck Darjeeling town.

THE TEA INDUSTRY

History—Before the transfer of Dr. Campbell to Darjeeling in 1839, the authorities had given some consideration to the possibility of developing the cultivation and manufacture of tea in the territories under the East India Company. In 1794 and again in 1804 H. T. Colebrooke had spoken about the possibility of growing tea and coffee and at this period Colonel Kyd was experimenting with tea in the Sibpur Botanic Garden. In 1821 the tea plant had been discovered growing wild in Assam and in 1834 the Governor-General, Lord William Bentinck, had appointed a committee to advise on the introduction of tea culture in India. Government made experimental plantations in Upper Assam, Kumaon and Garhwal and in 1839 private

enterprise took the field with the formation of the Assam Tea Company.

Dr. Campbell started experiments in Darjeeling. Their success encouraged others to experiment with seed distributed by Government. In 1852 a Mr. Jackson remarked in a report that bushes of both Assam and China types were doing well in the garden of the Superintendent, Dr. Campbell, in Darjeeling, as well as in the more extensive plantations of Dr. Withecombe, the Civil Surgeon, and of Major Crommelin of the Engineers in a lower valley called Lebong. It appeared from this report that Dr. Hooker and others considered that too much moisture and too little sun at Darjeeling made it unlikely that tea cultivation at that altitude would be remunerative.

By 1856 development had advanced from the experimental to a more extensive and commercial stage. The Rev. T. Boaz, M.D. in January 1857 stated that tea had been raised from seed at Takvar by Captain Masson, at Kurseong by Mr. Smith, at Hope Town by a Company, on the Kurseong flats by Mr. Martin and between Kurseong and Pankhabari by Captain Samler, agent of the Darjeeling Tea Concern. Development now proceeded at a rapid rate. In 1856 the Alubari tea garden was opened by the Kurseong and Darjeeling Tea Company and another garden by the Darjeeling Land Mortgage Bank on the Lebong spur. In 1859 the Dhutaria garden was started by Dr. Brougham and between 1860 and 1864 gardens at Ging, Ambutia, Takdah and Phubsering were established by the Darjeeling Tea Company and at Takvar and Badamtam by the Lebong Tea Company. The gardens now known as Makaibari, Pandam and Steinthal were also opened out in this period. Experimental plantations had been started in the Terai and in 1862 the first garden in the Terai was opened out at Champta near Khaprail by Mr. James White who had previously laid out one of the largest gardens of the district at Singell near Kurseong. Other gardens had been opened out in the Terai by 1866.

There had been rapid development in the hills as the suitability of the soil and climate became apparent. Government offered land to investors on favourable terms and by the end of 1866 there were 39 gardens in production with 10,000 acres under cultivation and an annual outturn of over 433,000 lbs. of tea. In 1870 there were

56 gardens with 11,000 acres under cultivation, employing 8,000 labourers and giving a crop of nearly

1,708,000 lbs. Development subsequent to 1870 will be seen from the accompanying table:

Year					Number of gardens	Area under tea (acres)	Outturn lbs.
1874	..	..	..	..	113	18,888	3,928,000
1885	..	..	..	..	175	38,499	9,090,500
1895	..	..	..	..	186	48,692	11,714,500
1905	..	..	..	..	148	50,618	12,447,500
1910	..	..	..	..	148	51,281	14,137,500
1915	..	..	..	..	148	54,024	20,303,500
1920	..	..	..	..	148	59,356	15,850,000
1925	..	..	..	..	148	59,356	18,732,500
1930	..	..	..	..	148	59,356	20,870,500
1935	..	..	..	..	148	59,356	20,798,000 black 228,000 green
1940	..	..	..	..	142	63,059	22,743,000 black 978,500 green
1951	..	..	..	..	138	62,580	29,283,500
1952	..	..	..	..	135	67,526	31,008,525 (excluding production of several gardens)

Only in the Kalimpong subdivision (taken from Bhutan in 1866) was land withheld from development under tea, Government's policy being to reserve that area for forest and ordinary cultivation.

Since 1940 production has increased considerably in spite of difficulties with transportation and costs. In 1942 the output was 26,478,500 lbs. of black tea and 1,242,000 lbs. of green tea. In 1943, 25,593,000 lbs. of black tea and 2,572,500 lbs. of green tea were produced. In 1951 a total of 29,283,500 lbs. of tea was produced.

Distribution of tea gardens will be seen from the following table:

Thana		Number of Tea Estates
Darjeeling	...	21
Jore Bungalow	..	18
Sukhiapokri	...	9
Pulbazar	...	2
Rangli Rangliot	...	11
Kurseong	...	32
Mirik	...	9
Siliguri	...	10
Kharibari	...	4
Phansidewa	...	3
Kalimpong	...	...
Garubathan	...	6
Total	...	125

In the year 1910 the total area under tea leases was 123,853 acres of which 51,281 acres were under tea. In 1920 these areas had increased to 142,152 and 59,356 and in 1940 to 167,972 and 63,059. The area under tea rose to a maximum in 1943 when it was 63,227 acres: in that year the total area under lease was 165,680 acres. That is to say 258.75 square miles were under tea lease and 98.8 square miles under tea during 1943. Expansion of the area under tea had, for some years before the time of writing, been restricted by Statute.

Outturns per acre for the Darjeeling district have been reported as follows:

Year		Darjeeling lbs.	Jalpaiguri lbs.
1910	..	280	..
1915	..	392	..
1921	..	252	426
1925	..	327	561
1930	..	353	616
1935	..	353	589
1940	..	383	725
1951	..	468	1,020

(corresponding figures for the Jalpaiguri district outturns have been given for certain of the years above).

Prices of Darjeeling teas have been somewhat erratic as will be seen from the table below:

Year			Prices at Calcutta auction sales per lb. (averages)			
			Rs.	a.	p.	
1910	..	..	0	8	9	(6.5 to 10.3)
1915	..	..	0	10	9	(7.11 to 11.10)
1920	..	..	0	7	5	
1925	..	..	1	0	0	
1930	..	..	0	14	9	
1935	..	..	0	12	2	
1940	..	..	1	0	0	
1946	..	..	1	15	1	
1949	..	..	2	5	6	
1950	..	..	2	10	2	
1952	..	..	1	13	1	

(By courtesy of J. Thomas & Co., Ltd., Calcutta)

While the labour force in the tea industry was in 1870, 8,000 numbers employed, in 1921 are given as 44,279 and in 1940, 61,540. In 1951 the number was estimated to be 69,590.

Cultivation—An account of tea leases will be found in the Jalpaiguri Handbook edited by me and published in 1953. The limits of tea cultivation in the district range from 300 feet or so above sea-level, in the Terai to 6,000 feet and more around Darjeeling town. Important factors in the production of tea are altitude, soil, aspect and slope of the land. The district is mountainous and has many varieties of soil: they range from red clay to a sandy loam and all seem suitable for growing tea. The rainfall of the district varies from place to place. The general range is from 70 inches to 240 inches but it is not uncommon for an estate having an annual rainfall of some 80 inches to adjoin a neighbour two miles away as the crow flies where the rainfall may be 120 inches. Local rainfall details will be found earlier in this book.

Darjeeling teas are famous for their flavour which is due in great measure to the low temperatures under which the better quality leaf is grown. Quality also improves in the cooler periods of the year when the lowering of temperature slows down leaf growth. The rate of growth of tea and to some extent its productivity depends on warmth and therefore on altitude and aspect.

District rainfall conditions suit tea bushes but considerable damage is caused by local hailstorms which are liable to occur in the spring, particularly in the months of April and May. Storms are less frequent in the Terai but hailstorms there are sometimes very large. In the Darjeeling hills it is on the whole correct to say that the lower valleys are less affected by hail

than the higher altitude slopes. There are however exceptions and storms are capricious; although some gardens are more regularly struck than others, a garden, which expects hail almost as a matter of course annually, sometimes escapes damage even in a year when hailstorms are frequent, while the garden which has had many years' freedom may be fiercely battered.

Damage varies from a light bruising and tearing of leaves affecting only quality and appearance rather than quantity to destruction of crop which can be as high as a quarter of the garden's normal annual harvest. Usually the damage is to the standing flush of leaf buds, particularly heavy in April when the first flush gives the most prolific harvest of the year. Damage may however also extend to the frame of the bush when stones strike off pieces of bark or break off tender growing branches.

Many gardens insure against hail damage, but whether there is insurance or not, it is customary to have the hail damage assessed by two independent planters invited by the owners of the damaged area. Assessment usually distinguishes between the "immediate loss" of standing leaf and the "consequential" loss due to the check of growth and ensuing time lag before plucking can be resumed.

Tea in the south of the Terai sometimes suffers from the effect of a dry and very hot west wind that blows for a few days at a time in the summer months of April and May and causes the leaves to wither and fall.

Tea is usually grown from seed. After germination, seedlings are reared for six months to three years in a nursery and are then planted out in the fields at intervals of about four feet. In the hills the tea bush reaches maturity in about seven years. All the original Darjeeling hill tea gardens were planted with China-hybrid bushes, many now nearing 100 years of age. Most gardens now follow a policy of replanting—not so much because the old tea is unproductive through age but because selection has shown that bushes can be substituted producing a good quality leaf and yielding an average crop three times greater than that of the original bushes which gave approximately four maunds per acre of black tea.

The use of fertilisers is now common. Nitrogen in the form of sulphate of ammonia is the most useful fertiliser. The normal rate of application is that which will provide 40 pounds of nitrogen per acre. With the fertilisers usually obtainable this means the application of about 200 lbs. weight of sulphate of ammonia to each acre. Terracing had long been considered a necessary precaution against erosion. Emphasis on terracing has, however, recently decreased since it is now commonly held that constant digging of

the soil is not a necessary element in cultivation. The soil now is disturbed as little as possible, cover crops are grown to prevent erosion and tufted grasses and other weeds which compete with the tea bush are eliminated.

In the hills it is customary to prune tea bushes once every three years. At lower elevations and in the Terai annual pruning is not uncommon. Heavy pruning, that is, cutting the thick branches of the bush close to ground level, is only necessary about once in 20 or 30 years. After heavy pruning several years are required to regain the optimum output of quantity and quality.

Blight is numerous but in the hills few of them do very serious damage. Blister blight, thought to have originated in wind-borne spores from forest tracts in Bhutan, made its appearance about 1910 and can be serious on pruned tea. Blister blight, alone among the commoner blights, is capable of destroying the young succulent shoots which sprout from pruned tea: most of the others affect only the leaves. Among these latter, mosquito blight is one of the more menacing but its serious depredations are for the most part limited to the Terai area. Mosquito blight, showing first as small black spots on the young leaves, may gradually cause all the tenderer leaves of the bush to dry and blacken; the crop may be severely affected. Red spider is at times prevalent enough to give whole areas of tea the appearance of rusted bushes but it usually disappears with the advent of heavy showers of rain in June. Sulphur in one form or another is frequently applied to the bushes to eradicate this pest. Thrips and green fly also attack tea bushes; the latter is believed to have a beneficial effect upon the flavour of the tea. This effect is largely due to the retarded rate of growth of the young shoot thus attacked, but opinion is divided as to whether the green fly causes the stunted growth or whether the stunted growth occurs first and attracts the green fly.

Manufacture—For the manufacture of tea only the two top leaves and the bud are picked as standard practice. The four main processes of manufacture are withering, rolling, fermentation and drying. The leaves (known as "the leaf") are withered for 18 hours by which time they have become flaccid without being overdry. From the withering racks the leaf is fed into rollers most of which hold about 300 pounds of withered leaf which will make about a 100 pounds of finished tea. The object of rolling is to distort the cells of the leaf. The machines in this operation attempt to achieve, on a larger scale, the effect originally obtained by rolling the leaf in the palms of the hand. As soon as the cells of the leaf have become sufficiently distorted, oxygen is absorbed from the air and complicated chemical changes take place. The chief of these is the

transformation of white, bitter tea-tannin into a red pungent substance. From the commencement of rolling the leaf begins to change colour. From green it takes on a yellow tint and finally a bright burnished-copper colour. Leaf is rolled for about 90 minutes (with interruptions for sifting and cooling the leaf at discretion) and thereafter is left lying thinly spread upon clean fermenting beds until the process is complete. Fermentation is usually complete $3\frac{1}{2}$ hours after the commencement of rolling.

It should be noted that "tea-tannin" is an entirely different substance from the tannin of medicine and commerce.

The copper coloured fermented leaf, which by now has an agreeable aroma, is taken to drying machines where moisture is extracted by exposing it to a draft of hot air (at some 200°F.). After about 25 minutes, the tea is black and feels completely dry. Actually its moisture content at this stage is about 3 per cent.

With the drying process the manufacture of tea is for all practical purposes complete; the dry black leaves, are, however, long, irregular and inconvenient for packing, handling and blending. They are therefore cut and sorted. Nine different sizes of tea are commonly made ranging from dust to pekoe which is about half an inch long. The sorted teas are kept in zinc lined bins until a sufficient quantity is usually about a ton. In present times tea is almost invariably packed in three-ply chests with a metal foil and inner paper lining. Vibrating machines are used to ensure that the tea is correctly packed. In the hills tea chests contain from 65 to 90 lbs. of tea. In the plains, where transport presents an easier problem, a larger chest is customary.

Many factories derive their motive power from a water-driven turbine. A few are supplied from the Darjeeling Municipal Electric Supply Station. Others use oil engines of the Diesel type. Most factories are lit electrically. A number are served by ropeways, others use pack ponies for transport.

Ninety-six per cent. of the labour employed on estates in the hills is Nepali and the language used by them is Nepali. In the Terai, population is mixed, with only 7 per cent. Nepalese and a high proportion of Scheduled Caste immigrants from Chhota Nagpur.

Recruitment of labour from Nepal is not permitted but there is, in fact, normally no shortage of labour in the hills. Inter-garden movement of Nepali labour in hill gardens is however appreciable. In the Terai a few gardens recruit through the Tea District Labour Association but recruitment in the plains is mainly by sardars, by private agency or through families already employed.

February is a peak month for labour: cultivation work is then heavy and the attendance of males higher. The two flushing periods, March-April and September-November, evoke increased attendance particularly of female pluckers. There is a general decline in attendance from May to September due partly to decrease in work and partly to illness: it is the season for dysentery in the hills and for malaria in the plains.

The average size of the family of the tea garden labourer in Darjeeling is 4.163 adult human units and the number of earners in terms of adult consumption units comes to 2.572. In pursuance of an agreement reached by all parties concerned, the employment of children below 12 years in tea plantations has been discontinued. Leaving out the children therefore from the number of earners in the family, the resultant number of earners above 12 years of age in a labouring family is 2.548. The number of dependants per adult earner has been calculated at 1.634.

The expenditure of families was carefully gone into by the Minimum Wages Committee and it was found that the average expenditure of a family per week in Darjeeling was Rs. 25.892. The average weekly expenditure per adult earner was therefore $\text{Rs. } 25.892 \div 2.542 = \text{Rs. } 10.162$. This amount is earned by an earner working 6 days a week with a day of rest. The daily income, inclusive of the value of concessions, of an adult male earner in Darjeeling was therefore Re. 1-11-1pie. The Committee tried to assess the cost of a prescribed diet per adult consumption unit and came to the conclusion that the cost of such a diet per day per adult consumption unit would be 11.61 annas in Darjeeling. The accounting was as follows:

Item	Quantity in ounce per adult consumption unit	Rate in annas per seer	Cost in annas per adult consumption unit
Cereals	15	7	3.27
Pulses	3	12	1.17
Vegetables	10	9	2.75
Milk	8	5	1.22
Fats and oils	2	Rs. 3	2.88
Fruits	2	5	.32
Total ..			11.61

This was the cost of food. The Committee next proceeded to find out the cost per adult unit in respect of items of expenditure other than food, such as lighting, fuel, clothing, household requisites, conventional necessities and other miscellaneous items. Making allowances for variations, the accounting for weekly expenditure

per adult consumption unit on items other than food came to the following:

	Rs.
Lighting	0.072
Fuel	0.290
Clothing	0.408
Household requisites	0.045
Conventional necessities	0.413
Miscellaneous	0.225
Total ..	1.453

The average daily cost per adult consumption unit therefore works out at $\text{Rs. } 1.453 \div 7 = \text{Rs. } 0.208$. Multiplying this sum by 1.634 (the number of dependants per adult earner), average daily expenditure on items other than food in respect of his dependants by each adult earner is $\text{Rs. } 0.208 \times 1.634 = \text{Rs. } 0.340$. The cost of food has similarly to be stepped up by multiplying 11.61 annas by 1.634 which comes to Rs. 1.186. The total expenditure per day to be incurred by each adult earner will be obtained by adding together the daily expenditure on food alone and that on other items mentioned above and is $\text{Rs. } 1.186 \text{ (food)} + \text{Rs. } 0.340 \text{ (on other items)} = \text{Rs. } 1.526$. The employer in tea estates allows certain concessions to the workers such as concessions in price of foodstuffs, free supply of a quantity of tea, etc. The money value of these concessions and benefits is therefore an income accruing to the family by virtue of employment in tea estates. These concessions include a patch of land, food subsidy, clothing subsidy, tea and umbrella, housing accommodation and sometimes supply of light. Firewood is occasionally supplied by the employer but is often collected by the members of the family from the adjoining forests. The Minimum Wages Committee unanimously decided that as a compromise 50 per cent. of the income in respect of firewood might be taken as representing the value of the employees' concessions in respect of that commodity. There was no clothing subsidy at the moment of the enquiry and the income from cattle, poultry, maternity allowance and other items were considered outside the bounds of employees' concessions. The income of the family per week from the permissible items of concessions, such as land, food subsidy, tea, umbrella and 50 per cent. of firewood was found to be Rs. 9.414 in Darjeeling. This income undoubtedly accrued to the family by virtue of the employment of the earners belonging to the family. From this the daily income from concessions for adult male earner was as follows:

	Rs.
A—Income of the family per week from concessions	9.414
B—Number of earners in the family in adult consumption units	2.548
C—Income per earner per week from the concessions (A ÷ B)	3.695
D—Income per earner per day (C ÷ 6)	0.616

The total expenditure per day to be incurred by each adult earner on food and other items was found to be Rs. 1.526. Each earner would have to earn in the course of 6 working days the requirements of 7 days. Therefore the cash income requirement per day for each adult male worker in Darjeeling was $\text{Rs. } 1.526 \times \frac{7}{6} = \text{Rs. } 1.780$. From this figure of Rs. 1.780 it was necessary deduct the daily income from concessions allowed by employers (Rs. 0.616). The net minimum daily cash income required for each adult earner to enable his family to live from week to week in a hand to mouth existence was Rs. 1.780—Rs. 0.616=Rs. 1.164 or Rs. 1-2-8 pies.

In Darjeeling there is no “doubling system” and the lowest paid adult male or woman earns 13 annas per day, 8 as. as hazira and 5 as. dearness allowance. This 13 annas is earned for work lasting between 6 and 8 hours in the garden. In the factory a worker works up to 8 hours daily. The female worker in Darjeeling earns 12 as. a day, 7 as. as hazira and 5 as. as dearness allowance; the adolescent 7 as. a day, 4 as. as hazira and 3 as. as dearness allowance. The Minimum Wages Committee was of the opinion that the principle of equality of remuneration for male and female workers for work of equal value could not yet be applied, as the nature of work in which males and females were employed varied except perhaps in plucking, and considered the existing difference of 1 anna per day in Darjeeling as satisfactory. The Committee further decided that adolescents should receive the same wages as adult female workers.

The Minimum Wages Committee came to the conclusion that the maximum limit of working hours excluding over-time in the gardens, should be fixed at 8 hours a day for adults and adolescents, with suitable modifications in case of employable children. There should be a weekly day of rest. So far as the factory was concerned, the number of hours of work for adult workers in any day should normally be up to 8 hours and should not exceed 9 hours in any day or 48 hours in any week. The Committee decided by a majority that over-time work beyond the maximum limit of 8 hours in the garden in all areas should be paid at double the ordinary rates of basic wages and cost of living allowance.

The Committee decided that the following should be the minimum daily rates of basic wages and cost of living allowance payable to manual workers employed in different Tea Estates in Darjeeling:

IN THE GARDEN

	Basic rate (annas)	Cost of living allowance (annas)	Total (annas)
Male adult ..	8	7	15
Female adult and adolescent	7	7	14
Employable child ..	4	4	8

IN THE FACTORY

	Basic rate (annas)	Cost of living allowance (annas)	Total (annas)
Male adult ..	9	7	Re. 1
Female adult and adolescent	8	7	15
Employable child ..	5	4	9

So far as the clerical employees were concerned the Committee recommended that the minimum monthly wages should be fixed on the following lines. The recommendations both for manual workers and clerical employees were made on the basis that the existing system of supply of food-stuffs at concession rates should be continued.

DARJEELING

	Basic rate per month Rs.	Cost of living allowance per month Rs.	Total per month Rs.
Non-Matriculate	45	20	65
Matriculate	50	20	70

FORESTS

The majority of the forest areas of the district are administered as reserved forests by the Forest Department of the Government of West Bengal and it is the forests so administered that are described in this section. The area of Departmental Forests in March 1951 was 289,755 acres or 453 square miles and of private forests 22,255 acres or 35 square miles.

Appreciable areas of land covered by forest are however included in many tea leases of which the produce is utilised by lease-holders. The timber is used for the manufacture of tea boxes and charcoal, for bridge and house building and as fuel both for domestic purposes and for the drying of tea, a half and half mixture of wood and coal being commonly used for this last purpose. It has not been possible to arrive at any estimate of the quantity of forest produce that is utilised by lease holders, but some idea of the areas leased for tea which may be under forest can be gathered from the fact that out of 165,680 acres leased, only 62,580 acres are actually under tea cultivation (1951). Some garden managements devote attention to reafforestation and are able to maintain the potential value of their forests.

Certain areas under forest not included in the reserved forests are under the Khas Mahal administration of the Deputy Commissioner. The area of these forests is probably diminishing—in 1907 it was estimated to be 2 square miles. It has proved difficult to maintain and administer these forests areas efficiently and their value measured in

produce is small. They provide some forest produce for villagers but their main importance lies often in the protection they afford against erosion.

History and Administration—The area first taken over in 1835 from Sikkim, *i.e.*, the hill tract between the Kyal and the Balasan on the east and the Rangu and the Mahanadi on the west, was then entirely covered with forest and was practically uninhabited. So also were the hill areas between the Mechi and the Balasan and between the Tista and the Mahanadi which were taken over in 1850. Colonisation and conversion of this forest into cultivated land and tea gardens were rapid as population increased. The Kalimpong subdivision was annexed in 1865 and had then a population estimated at 3,536. Here too, a rapid clearance of forest and a considerable extension of cultivation followed an influx of settlers.

Prior to 1863, Bengal and Assam, or the "Lower Provinces" as they were designated at the time, paid very little attention to the conservation of their forests. Calcutta had imported all its timber requirements from Burma and from Northern India. Other thickly populated areas had exploited local resources and imported produce from such forests as were accessible by river. Prices of both fuel and timber had greatly increased with gradual deforestation of the areas nearer to towns. Government therefore decided to fall into line with other provinces in India, introduce measures of conservancy against over-exploitation and save the remaining forests from total destruction.

Under instruction from the Government of India, D. Brandis when on his way from Burma to take up the post of Inspector-General of Forests, India, inspected some of the forests of Bengal. In December 1862, in consultation with Dr. Anderson, the Superintendent of the Botanical Gardens, Calcutta, he submitted his proposals for the conservation of the Bengal forests.

In 1864, Dr. Anderson was entrusted with the work of carrying out preliminary investigation and inquiries. These were confined to the northern part of the Province, *i.e.*, the Eastern Himalayas including Sikkim and the belt of *sal* forest in the Terai and Duars at the foot of the hills. As the Bhutan War was in progress at the time, his work in the Duars was considerably interfered with.

As a result of his preliminary proposals, Dr. Anderson was appointed Conservator of Forests in addition to his duties in the Botanical Gardens, Calcutta, and forest conservancy was inaugurated in Bengal in August 1864. The first reserves were notified in 1865 in the present Darjeeling Division, where work had commenced in the previous year.

The forest of Ghumpahar had been "reserved" for the local wants of Darjeeling. It was first administered by the Municipality and was made Reserved Forest in 1879. The remaining forests

in the ceded territory were placed entirely under the charge of the Forest Department. Dr. Anderson found that he could not cope with the work of both posts and resigned his conservatorship at the end of 1867 when Mr. Leeds, who had joined from Burma, was appointed the first whole-time Conservator of Forests.

Mr. Leeds was succeeded in December 1872 by Dr. W. Schlich as Conservator of Forests, Bengal. Up to 1874, the forests of Darjeeling district had been included in the Cooch Behar Forest Division. In 1875, the Darjeeling forests were taken out of the Cooch Behar Division and made into a separate Division: the hill portion of Kalimpong and Kurseong Divisions were included in the new Division. As a result of further reservations of forest in the Terai and Duars, Schlich reorganised the Division in 1878 and the Darjeeling, Tista (now Kalimpong) and Kurseong Divisions were formed.

At that time Kurseong Division was treated as a subdivision of the Darjeeling Division and did not include the Mahaldiram and Chattakpur blocks which were part of the Darjeeling Division. In 1890 the Kurseong Division was separated and in 1891 the Sivok Hill Forests which had been under the Tista Division since 1881 were restored to Kurseong. In 1910 and 1919 the Mahaldiram and Chattakpur blocks were transferred to Kurseong from Darjeeling. In addition to these three territorial Divisions another major administrative charge was created in 1944 for the Directorship of the Bengal Forest School.

The Bengal Forest School which was opened at Dow Hill in the Kurseong Forest Division in 1907 is under the administrative control of the Conservator of Forests, Bengal. The School is primarily intended for the instruction in practical forest work of the Subordinate Executive Establishment below the rank of Forest Ranger. Forest Subordinates from Bihar and Orissa and men from zamindaris under the control of Government of Bengal and from States were also trained here until 1929—when Bihar and Orissa and the Feudatory States of Orissa opened the Orissa States Forest School at Keenjharagarh to train their own men. In 1929 the Assam Government started sending men to the school.

The period of training was originally 6 months but was extended in 1929 to approximately 11 months. The course begins on the 1st November each year and from November to the end of April the students receive practical tuition in forests of interest in the Province. From May to the Durga Pujah holidays theoretical instruction is given in the school and excursions are made to the hill forests of the Kurseong and Darjeeling Divisions.

Until 1944 the Divisional Forest Officer, Kurseong, acted as Director of the School in addition to his own duties. He had the assistance of

a Provincial Service Officer as instructor. The Directorship of the School was created a separate major charge in June 1944. The number of students was then increased from 16 to 20 and an Instructor of Forest Ranger rank appointed to assist the Director.

The three divisions of the district are divided into the following ranges and blocks:

(a) Darjeeling

The total area of the Forest Division was 71,978 acres according to the VIIIth Working Plan.

Due to the addition of the Selimbong Extension Reserve in 1940, the total area of the Division has since increased to 72,788 acres, i.e., 113.8 square miles. The whole area has been constituted into reserved forests. The Darjeeling Civil subdivision covers approximately 330 square miles, the reserved forests therefore comprise nearly a third of the subdivision. Out of 72,788 acres of reserved forests, areas totalling 1,485 acres have temporarily been transferred to different departments. The Forest Division has been divided into Seven Ranges and contains 73 blocks as follows:

Range	Block							Area in acres
Tista Valley	Sambong	..	..	..	1,720
				Pashok	..	..	..	1,071
				Mangwa	..	..	..	1,123
				Simlijhora Extension	..	..	..	56
				Giel	..	..	..	526
				Riang	..	..	..	2,131
				Tarzom Forest Village	..	..	..	265
Range total (7 blocks)							6,892	
Darjeeling	Sum	..	..	..	187
				Patliabas	..	..	..	44
				Badamtam	..	..	..	697
Range total (3 blocks)							928	
Takdah	Lopchu	..	..	..	742
				Lopchu Extension	..	..	..	46
				Lingding	..	..	..	543
				Hum	..	..	..	443
				Pumong	..	..	..	466
				Pumong Extension	..	..	..	131
				Rampuria	..	..	..	438
				Simkona	..	..	..	585
				Rambi Extension	..	..	..	51
				Topkedara	..	..	..	188
				Dawaipani	..	..	..	819
				Sim	..	..	..	328
Range total (12 blocks)							4,780	
Senchal	Gaddikhana	..	..	..	648
				Rangirum	..	..	..	505
				Setikhola	..	..	..	28
				Rongdong	..	..	..	503
				Dooteria	..	..	..	578
				Rambi	..	..	..	560
				Rishap	..	..	..	887
				Sureil	..	..	..	578
				Senchal Pasturo	..	..	..	420
				Bara Senchal	..	..	..	656
				Chattakpur	..	..	..	271
				Rangbul	..	..	..	215
				Sonada	..	..	..	406
				Pachim	..	..	..	279
				Gorabarik	..	..	..	63
				Catchment area	..	..	..	1,118
Range total (16 blocks)							7,715	

Range				Block				Area in acres
Ghum-Simana	..	..	..	Ghum	..	..	..	547
				Bhanjang	..	..	..	482
				Poobong	..	..	..	546
				Balasan	..	..	..	395
				Dungdungia	..	..	..	193
				Lepchajagat	..	..	..	393
				Rishihat	..	..	..	438
				Barbatia	..	..	..	453
				Durbin	..	..	..	521
				Gurasedara	..	..	..	477
				Tomsong	..	..	..	441
				Sukiapokhri	..	..	..	580
				Pugriangbong	..	..	..	796
				Rangbong	..	..	..	703
				Pulongdong	..	..	..	586
				Majhidhura	..	..	..	279
				Jorepokhri	..	..	..	480
				Parmaigiri	..	..	..	519
				Manibhanjang	..	..	..	354
				Sukiapokhri Bazar Location	..	..	..	22
Range total (20 blocks)							..	9,205
Tonglu	..	..	..	Little Rangit	..	..	..	1,969
				Tonglu	..	..	..	764
				Batasi	..	..	..	836
				Rilling	..	..	..	1,404
				Kankibong	..	..	..	4,190
				Selimbong	..	..	..	1,936
				Selimbong Extension	..	..	..	810
				Rithu	..	..	..	3,669
Range total (8 blocks)							..	15,578
Singalila	..	..	..	South Rimbik	..	..	..	4,091
				North Rimbik	..	..	..	2,712
				Sandakphu	..	..	..	5,225
				Siri	..	..	..	2,821
				Sabarkum	..	..	..	5,343
				Ramam	..	..	..	3,874
				Phalut	..	..	..	3,624
Range total (7 blocks)							..	27,690
Total area of reserved forests in the Division							..	72,788 acres or 113.8 Sq. miles

(b) Kurseong

The reserved forest covers an area of 71,971 acres of which 26,971 acres are situated in the plains. The total area is divided into 5 ranges as follows:

Name of Range						Hill	Plain	Total area
Kurseong	..	..	..	..	..	14,677	..	14,677
Sivoke	..	..	..	..	..	14,513	3,768	18,281
Sukna	..	..	..	..	..	9,776	6,793	16,569
Bagdogra	..	..	..	..	..	..	10,897	10,897
Punkhabari	..	..	..	..	..	6,034	5,513	11,547
						45,000	26,971	71,971

The details of each range are given below:

Range	Block				Total area in acres
Sivoke	Berrik .. .. .	..	..	..	1,281
	Kundong .. .. .	..	..	..	1,419
	Sitikhola .. .. .	..	..	..	2,102
	Ruyem .. .. .	..	..	..	1,414
	Andera .. .. .	..	..	..	945
	Chawa .. .. .	..	..	..	1,185
	Gola .. .. .	..	..	..	1,497
	Upper Ghoramara .. .. .	..	..	..	2,316
	Jhinaikuri .. .. .	..	..	..	62
	Jhinaikuri .. .. .	..	..	..	507
	Samurdanga .. .. .	..	..	..	669
	East Sivoke .. .. .	..	..	..	579
	North Sivoke .. .. .	..	..	..	938
	West Sivoke .. .. .	..	..	..	402
	Silibhita .. .. .	..	..	..	383
	Lower Ghoramara .. .. .	..	..	..	228
	Lower Ghoramara .. .. .	..	..	..	1,739
	Gulma valley .. .. .	..	..	..	615
	Range total .. .. .	..	..	..	18,281
Sukna	Gulma valley .. .. .	..	..	..	1,581
	Choklong .. .. .	..	..	..	1,287
	Jogijhora .. .. .	..	..	..	1,163
	Bandarjhola .. .. .	..	..	..	1,320
	Gulma .. .. .	..	..	..	421
	Singimari .. .. .	..	..	..	1,049
	Upper Champasari .. .. .	..	..	..	783
	Lower Champasari .. .. .	..	..	..	480
	Mahanadi .. .. .	..	..	..	978
	Mohorgong .. .. .	..	..	..	59
	Mohorgong (1b) .. .. .	..	..	..	366
	Mohorgong (1c) .. .. .	..	..	..	188
	Mohorgong (1d) .. .. .	..	..	..	128
	Hatisar (1a) .. .. .	..	..	..	120
	Hatisar (1b) .. .. .	..	..	..	323
	Panchonai (1a) .. .. .	..	..	..	207
	Panchonai (1b) .. .. .	..	..	..	154
	Kynanuka .. .. .	..	..	..	487
	Adalpur .. .. .	..	..	..	328
	Chamta .. .. .	..	..	..	494
	Rungdong .. .. .	..	..	..	250
	Sukna (1) .. .. .	..	..	..	328
	Sukna (2a) .. .. .	..	..	..	69
	Sukna (2b) .. .. .	..	..	..	416
	Sukna (3a) .. .. .	..	..	..	63
	Sukna (3b) .. .. .	..	..	..	635
	Punding (1a) .. .. .	..	..	..	46
	Punding (1b) .. .. .	..	..	..	182
	Punding (2a) .. .. .	..	..	..	80
	Punding (2b) .. .. .	..	..	..	1,783
	Punding (2c) .. .. .	..	..	..	31
	Kuklong .. .. .	..	..	..	770
	Range total .. .. .	..	..	..	16,569

Range	Block				Total area in acres
Bagdogra	Borobhita	..	..	..	327
	Boiranti	..	..	..	351
	Latua	..	..	..	859
	Pantapari	..	..	..	663
	Dauhara	..	..	..	839
	Tarabari	..	..	..	906
	Tirihana	..	..	..	446
	Taipu	..	..	..	473
	Khadma (1a)	..	..	..	71
	Khadma (1b)	..	..	..	149
	Khadma (1c)	..	..	..	89
	Bengdubi	..	..	..	725
	Central	..	..	..	489
	Dalka	..	..	..	727
	Harlia	..	..	..	261
	Bagdogra	..	..	..	629
	Rishabari	..	..	..	663
	Lalfa	..	..	..	512
	Malta ..	..	..	..	329
	Tukriajhar (1a)	..	..	..	1,314
	Tukriajhar (1b)	..	..	..	75
	Range total	..	..	..	10,897

Pankhabari	Lamagumba	..	..	..	505
	Bamanpokri (1)	..	..	..	380
	Bamanpokri (2)	..	..	..	1,000
	Rakti ..	..	..	..	189
	Balasan (1)	..	..	..	139
	Balasan (2)	..	..	..	694
	Panighata (1a)	..	..	..	715
	Panighata (1b)	..	..	..	108
	Panighata (1c)	..	..	..	426
	Panighata (1d)	..	..	..	51
	Panighata (1e)	..	..	..	81
	Bunklong	..	..	..	1,156
	Khairbani	..	..	..	1,952
	Lohagarh (1a)	..	..	..	277
	Lohagarh (1b)	..	..	..	253
	Lohagarh (1c)	..	..	..	48
	Upper Mechi (1a)	..	..	..	268
	Upper Mechi (1b)	..	..	..	13
	Central Mechi (1a)	..	..	..	275
	Central Mechi (1b)	..	..	..	42
	Central Mechi (1c)	..	..	..	30
	Central Mechi (1d)	..	..	..	8
	Lower Mechi	..	..	..	428
	Nipania	..	..	..	498
	Gurabadi	..	..	..	984
	Kolabari	..	..	..	468
	Surajbor	..	..	..	98
	Phuaguri	..	..	..	468
	Range total	..	..	..	11,547

Range	Block				Total area in acres
Kurseong	Sivakhola .. .. .	..	..	..	417
	Paglaajhora .. .. .	..	..	..	432
	Majua .. .. .	..	..	..	498
	Mana .. .. .	..	..	..	1,914
	Latpanchor (1a) .. .. .	..	..	..	1,439
	Latpanchor (1b) .. .. .	..	..	..	41
	Kuhi .. .. .	..	..	..	1,105
	Sitong (1a) .. .. .	..	..	..	1,899
	Sitong (1b) .. .. .	..	..	..	65
	Numbong .. .. .	..	..	..	1,294
	Lower Babukhola .. .. .	..	..	..	734
	Upper Babukhola .. .. .	..	..	..	556
	Chattakpur .. .. .	..	..	..	330
	Mahaldiram (1a) .. .. .	..	..	..	305
	Mahaldiram (1b) .. .. .	..	..	..	371
	Mahakdiram (2a) .. .. .	..	..	..	206
	Mahaldiram (2b) .. .. .	..	..	..	59
	Mahaldiram (2c) .. .. .	..	..	..	36
	Mahaldiram (2d) .. .. .	..	..	..	281
	Mahaldiram (3a) .. .. .	..	..	..	608
	Mahaldiram (3b) .. .. .	..	..	..	83
	Mahakdiram (4a) .. .. .	..	..	..	514
	Mahaldiram (4b) .. .. .	..	..	..	113
	Mahakdiram (4c) .. .. .	..	..	..	184
	Mahaldiram (5) .. .. .	..	..	..	637
	Dhobijhora (1a) .. .. .	..	..	..	289
	Dhobijhora (1b) .. .. .	..	..	..	133
	Dhobijhora (1c) .. .. .	..	..	..	134
	Range total .. .. .	..	..	..	14,677
Total area of Reserved Forests in the Division ..					71,971
					or
					112.45
					Sq. miles

(c) Kalimpong

The area of the Kalimpong subdivision is 412 square miles, of which 225 square miles are under reserved forests and 0.27 square mile is under protected forests. Of the reserved forests about 15 square miles are under the management of the

Cinchona Directorate and other departments and the rest is under the management of the Forest Directorate. The protected forests also are under the management of this Directorate. The Forest Division has been divided into 6 ranges and contains 57 blocks as follows:

Range	Block	Reserved Forests				Area in acres
	Rangpo .. .. .	..	..	..	..	651
	Mangchu .. .. .	..	..	..	..	701
	Sangser .. .. .	..	..	..	..	1,496
	Bhalukop .. .. .	..	..	..	..	2,115
	Mangbar .. .. .	..	..	..	..	1,163
	Tashiding .. .. .	..	..	..	..	1,528
	Rinkinpong .. .. .	..	..	..	..	1,535
	Kamesi .. .. .	..	..	..	..	1,524
	Tunang .. .. .	..	..	..	..	1,870
	Suruk .. .. .	..	..	..	..	193
	Nazeok .. .. .	..	..	..	..	2,251
	Guling .. .. .	..	..	..	..	1,120
	Ponbu .. .. .	..	..	..	..	2,051
	Range total (13 blocks) .. .. .	..	..	..	..	18,198

Range				Block				Area in acres	
Chel	..	..	..	Mongpong	..	..	..	6,617
				Youngmakum	..	..	..	520
				Lish ..	..	..	..	4,684
				Churonthi	..	..	..	4,566
				Ramthi	..	..	..	4,146
				Lethi ..	..	..	..	4,581
				Noam	..	..	..	3,373
				Fagu ..	..	..	..	4,338
				Range total (8 blocks)								32,825
Neora	..	..	..	Ambick	..	..	..	1,234
				Dalingkot	..	..	..	1,906
				Sakam	..	..	..	2,277
				Mal ..	..	..	..	6,107
				West Nar	..	..	..	5,452
Range total (5 blocks)								16,976	
Jaldhaka	..	..	..	East Nar	..	..	..	7,815
				Mo ..	..	..	..	5,022
				Khumani	..	..	..	3,878
				Bongo	..	..	..	4,662
				Paren	..	..	..	3,613
				Chichu	..	..	..	1,215
Range total (6 blocks)								26,205	
Pankassari	..	..	..	Merong	..	..	..	798
				Damsong	..	..	..	965
				Iche ..	..	..	..	818
				Upper Sangsor	..	..	..	422
				Rissum	..	..	..	615
				Paiengaon	..	..	..	1,255
				Khampong	..	..	..	1,517
				Saihur	..	..	..	2,171
				Kafir	..	..	..	641
				Lulagaon	..	..	..	1,196
				Samthar	..	..	..	1,132
				Pemling	..	..	..	1,055
				Bokhim	..	..	..	911
				Chumang	..	..	..	1,266
				Labha*	..	..	..	1,964
				Pankassari**	..	..	..	3,356
				Rechi La	..	..	..	6,327
				Thosum	..	..	..	2,454
				Ruka ..	..	..	..	4,291
				Rhenock	..	..	..	2,376
				Rashet	..	..	..	1,801
				Kolbong	..	..	..	1,602
				Paktham	..	..	..	1,385
Range total (23 blocks)								40,318	

*Excludes Labha bazar.

**Excludes Rechi La Chak.

Range	Block					Area in acres
Reclamation	Dolapchen					188.18
Range total (1 block) ..						188.18
Total area of the Reserved Forests in the Division ..						134,710.18
						or 210.5 square miles
<i>Protected Forests</i>						
Reclamation	Kalimpong Development Area Protected Forest ..					173.03
Total area of the Protected Forests in the Division ..						173.03
						or 0.27 square miles

The blocks vary in size according to their accessibility, those at higher elevation and difficult of access being usually larger than others.

There are two exclusions within the reserved forests, one in the Labha block (the bazar—11

acres) and the other in the Rechi La block (chak—277 acres). These were deforested and are under the management of the Deputy Commissioner, Darjeeling.

The following types of forests are to be found in the Darjeeling Forest Division :

<i>Types</i>	<i>Range (elevation in feet)</i>
(1) Riverain (Champion's type 6/1s-2)	
(2) Lower Hill Forest	600' to 3,000' elevation (Type of Champion's group 3b)
<i>Sub-types</i>	
(a) Sal Forest [Champion's sub-type 3b/C2-D1(a)]	
(b) Dry Mixed Forest (Champion's type 3b/E 6)	
(c) Wet Mixed Forest (Champion's type 3b/2s-4)	
(3) Middle Hill Forest	3,000' to 5,000' elevation (Champion's type 7h/C1).
(4) Upper Hill Forest	5,000' to 9,500' elevation (Champion's type 10b/C1).
(5) Alpine, the Conifer and Rhododendron Forests ..	9,500' to 12,000' elevation (Types of Champion's group 13/C1 and C2).

Riverain Forests—These exist in very small patches in the bed of the Great Rangit river; *siris* (*Albizia spp.*) and *dabdabc* (*Garuga pinnata*) are the principal species there.

Undergrowth—The undergrowth often consists of herbaceous annuals and grasses, the commonest ones being *archal* (*Antidesma diandrum*), *khasila* (*Saccharum spontaneum*) and thatch grasses. Occasionally it is totally absent.

These patches of forests are generally free from climbers, but occasionally *supari lahara* (*Croton candatus*) has been noticed.

Lower Hill Forests—These occupy the Tista and the Rangit valleys and consist of several sub-types which are found intimately mixed and merging gradually into one another. Three main sub-types are distinguished, viz.—(a) Sal Forests, (b) Dry Mixed Forests, and (c) Wet Mixed Forests. The composition and condition of these sub-types are dealt with below :

(a) *Sal Forests*

Sal is confined to the Daling series only, i.e., in the Tista and the Great Rangit valleys; and generally gregariously occupies the ridges, spurs and well-drained flats. It reaches higher elevations on the southerly aspects than on the northerly ones and grows better on the former. Except on the ridges, spurs and well-drained flats, the *sal* occurs as isolated trees; and those found in the pockets of the valleys are best in quality. Its principal associates are *chilaune* (*Schima wallichii*), *pakasaj* (*Terminalia crenulata*), *parari* (*Stereospermum chelonoides*), *dabdaba* (*Garuga pinnata*) and *chikrase* (*Chukrassia tabularis*). In the Badamtam block, it is found growing gregariously with *chir pine* (*Pinus longifolia*), and if its invasion is not controlled *chir pine* which is naturally growing only in this block will ultimately be ousted. *Sal* growing on rocky areas is stunted and deformed and has not got any value as timber.

(b) Dry Mixed Forests

These are generally deciduous and occupy the dry ridges, spurs, slopes and flats. *Sal* occurs as isolated trees. The species found in this sub-type are numerous and intimately mixed, and the most common and important ones are enumerated below:

Chilaune, *nauwa* (*Engelhardtia spicata*), *musre katus* (*Castanopsis tribuloides*), *dalne katus* (*Castanopsis indica*) and *Chiple kawla* (*Machilus gammieana*) start growing in this type and enter into the lower region of the Middle Hill Forest type to grow predominantly.

Maina (*Tetrameles nudiflora*), *mandane* (*Acrocarpus fraxinifolius*), *odal* (*Sterculia villosa*), *pakasaj*, *lampate* (*Duabanga sonneratioides*), *gamari* (*Gmelina arborea*), *gokul* (*Ailanthus gradis*), *siris*, *phaledo* (*Erythrina indica*), *parari*, *chikrase*, *tun* (*Cedrela toona*), *simal* (*Bombax malabaricum*), *dahdabe*, *malata* (*Macaranga* spp.) occur all over the type.

(c) Wet Mixed Forests

These occur in the sheltered pockets in the valleys along *jhoras* and are evergreen. The predominating species are *panisaj* (*Terminalia myriocarpa*), *champ* (*Michelia champaca*), *lahasune* (*Amoora rohituka*), *lali* (*Amoora wallichii*), *tarsing* (*Beilschmiedia sikkimensis*), *umbake* (*Eugenia formosa*), *tantri* (*Dillenia pentagyna*) and *jaman* (*Eugenia* spp.).

Undergrowth—In the *sal* forests undergrowths are few and sparsely distributed, and mainly comprised of *amlisha* (*Thysanoloena agrostis*) and *sau* grass (*Pollinia ciliata*); in the Dry Mixed type they are more numerous and mostly composed of *Coffea bangalensis*, *amlisha*, *choya bans* (*Dendrocalamus hamiltonii*), *tarika* (*Pandanus furcatus*), *assam-lota* and other herbaceous annuals and shrubs; and in the Wet Mixed type they are innumerable and dense and often impenetrable. The predominating ones are *bepari* (*Ostodes paniculatus*), *choya bans*, *canes*, *kabai pat* (*Phrynium imbricatum*), *hatisara* (*Alpinia nutans*), *kamle* (*Boehmeria* spp.) and other herbaceous annuals and shrubs and plants. Climbers are too numerous in the type and have the habit of forming impenetrable masses except in the *sal* forests where they are sparsely distributed. The commonest ones of them are *Acacia pennata*, *Millettia*, *auriculata*, *Mucuna pruriens*, *Mucuna macrocarpa*, *spatholobus roxburghii*, *Bauhinia vahlii*, *Dalbergia stipulata* and *Tinospora cordifolia*.

Plantations in the Lower Hill Forests—1,064 acres of plantations have been created up to 1951. The species grown are *sal*, *lampate*, *panisaj*, *champ* (*Michelia champaca*), *tun*, *kimbu* (*Morus laevigata*), *Chikrase*, *mandane*, *gamari*, *simal*, *chapalish*, *Artocarpus chaplasi*, *gokul lapsi* (*Spondias axillaris*), *lahasune*, *saur* (*Betula cylindrostachys*), *teak*, *lali*, *pakasaj*, *chilaune*,

jarul (*Lagerstroemia flos-reginae*), *marina*, *siris*, *dar* (*Boehmeria rugulosa*) and *sissoo* (*Dalbergia sissoo*).

Besides the above plantations there are 295 acres of old plantations which have now been treated as high forests.

Middle Hill forests—The predominating species growing in the type are given below:

Chilaune, *mauwa*, *musre katus*, *dalne katus*, *chiple kawla* and *bepari* which occur in the aforesaid Lower Hill Forests are found predominantly covering the Lower region of this type.

Saur (*Betula alnoides*), *utis* (*Alnus nepalensis*), *pipli* (*Bucklandia populnea*), *lekh-chilaune* (*Nyssa sessiliflora*), *lekh tun* (*Cedrela febrifuga*), *lapche kawla* (*Machilus edulis*) predominantly covering the upper region of the type enter into the lower region of the Upper Hill Forest type.

Undergrowth—Herbaceous undergrowths namely *kibu* (*strobilanthus* spp.), *sissoo* (*Girardinia* spp.), and ferns are common, and small trees namely *Jhugni* (*Eurya japonica*), *kharane* (*Symplocos theifolia*), *bepari* and *malata* (*Macaranga* spp.) are also often met with. Climbers are few.

Plantations—311 acres of plantations have been raised in this type up to 1951, and the species grown are *utis*, *pipli*, *champ*, *dhupi* (*Cryptomeria japonica*), *tun*, *lapsi*, *panisaj*, Cypress, *Eucalyptus* spp., *walnut*, *bajrant* (*Quercus lamellosa*), *phusre* *champ* (*Michelia lanuginosa*) and *chikrase*.

In addition to the above there are 135 acres of old plantations which are now treated as high forests.

Upper Hill Forests—As already mentioned this type starts with *saur*, *utis*, *pipli*, *lekh-chilaune*, *tun* and *lapche-kawla*, in the lower region, but the most predominating species in the type are *buk* (*Quercus lamellosa*), *phalant* (*Quercus lineata*), *Sungure katus* (*Quercus pachyphylla*), *lali-kawla* (*Machilus excelsa*), *ghoge champ* (*Magnolia campbellii*), *kapasi* (*Acer campbellii*), *arupate* (*Prunus nepaulensis*), *arkaula* (*Quercus fenestrata*), *walnut* (*Juglans regia*), *sinkoli* (*Cinnamomum obtusifolium*), *lekh-dahdabe* (*Meliosma wallichii*) and a few *Rhododendron* spp., *hemlock* (*Tsuga brunoniana*) and *yew* (*Taxus baccata*).

Sungure katus extends its existence up to 10,000' elevation in the Alpine Forests as one of the associates of *hemlock* (*Tsuga brunoniana*), but its growth is much checked there.

Hemlock is now confined in the North Rimbik, Sandakphu, Siri, Ramam, Sabarkum and Phalut blocks of the Singalila Range. It was present in appreciable quantities in the South Rimbik block, but almost all gradually died leaving remains of huge trees in places. It generally starts growing in the Range from about 9,000' elevation, but in the Ramam block it goes down to about 7,500' elevation.

Yew (*Taxus baccata*) occurs sporadically only in the Kankibong and Rithu blocks in the Tonglu Range, and North Rimbik, Sandakphu, Siri, Ramam, Sabarkum and Phalut blocks in the Singalila Range. It generally occurs in the northerly aspects. It is confined between 7,500' and 8,500' elevations in the Tonglu and between 7,500' and 10,000' elevations in the Singalila Range. It is one of the associates of hemlock up to 10,000' elevation in the Singalila Range only.

Accidental fires have caused extensive blanks in these forests in Tonglu and Singalila Ranges.

Undergrowth—It consists mainly of *kibu*, *sisnu*, *aselu*, *chiple* (*Pouzolzia viminea*), *buri akhati* (*Astelbu rivularis*), *Chireta* (*Succrtia chirata*), (above 6,000'), fern and other herbaceous plants and small trees namely, *jhingni*, *kharane*, *asare*, *kesari* (*Mahonia sikkimensis*), *kagate* (*Daphne canabina*), *Pieris ovalifolia* and *malang* bamboos (*Arundinaria malang*). Density of the undergrowth is generally light, but *malang* forms impenetrable masses in blanks. Climbers are scarce.

Plantations—9,030 acres of plantations including 1,889 acres of coniferous ones have been created up to 1951. The species grown are hemlock, *dhupi*, *arupate*, oak, walnut, *saur*, *champ* (*Michelia* spp. and *Magnolia* spp.), *kapasi*, *kawla* (*Machilus* spp.), silver fir (*Abies densa*), *sungure katus*, *deodar* (*Cedrus deodara*), *malugiri* (*Cinnamomum cecidodaphne*), *Picea morinda*, *Thuja* spp., *lal chandan* (*Daphniphyllum himalayense*), *utis*, *doglus* fir, *Eucalyptus* spp., *angeri* (*Pieris ovalifolia*), *Cupressus* spp., *Pinus excelsa*, *maya* (*Eriobotrya* spp.) and *Juniperus virginiana*.

Besides the abovementioned plantations, there are 486 acres of old coniferous plantations, mostly of *dhupi*, and 3,452 acres of old broad-leaved plantations which are now treated as high forests.

Growing of *dhupi* plantations was commenced since 1892, i.e., during the First Working Plan by Manson, and discontinued since 1940, i.e., during the current working plan.

It is rather striking to find that *Pieris ovalifolia* and *ghoge champ* have been grown in Ramam and South Rimbik plantations respectively though they have not any value as timber.

Alpine or Conifer and Rhododendron Forests—The predominating species are hemlock and silver fir. Hemlock commencing from the Upper Hill Forest type extends up to about 10,500' elevation. It forms a more or less pure crop on the ridges and spurs from about 9,500' to 10,500' elevations, elsewhere it is sparsely distributed. Up to 10,000' elevation its main associate is *sungure katus*, a broad-leaved species. *Sungure katus* is replaced by *bhujpat* about 10,000' elevation commencing growing from about 9,000' elevation. *Bhujpat* up to about 10,500' elevation up to which hemlock ascends,

Silver fir starts growing from about 10,000' elevation and extends up to about 12,000' elevation. In valleys it goes down up to 9,500' elevation. It forms a more or less pure crop on spurs and ridges from about 10,500' elevation and upwards. Hemlock, *Rhododendrons* and birch (*Betula utilis*) are its associates.

Rhododendron campanulata often forms a pure crop in patches above 11,500' elevation.

Only a few *lekh-dhup* (*Juniperus pseudo sabina*) are noticed in Sandakphu and Siri blocks.

Accidental fires have caused large blanks in these forests. They are either bare or covered with *rato nigalo* (*Arundinaria aristata*).

Undergrowth—Undergrowth is very sparse except where *rato nigalo* grows. It is impenetrable except where constant grazing is done.

Berberis aristata and *Rosa sericea* occasionally form small bushes in naked blanks in the uppermost region.

Plantations—There are only 7 acres of plantations grown in the type. The species grown are *dhupi*, silver fir, *Rhododendron* spp., *buk*, *phalant* and hemlock.

Condition of the crop—The forests are growing on the rich soil resulted from Daling and Darjeeling gneiss and are on the whole of a good quality. Except *sal*, a small percentage of the crop is at present valuable, and that too is only locally. None but *sal* had any commercial value so long. But very recently *dhupi* and hemlock also are finding a market in Calcutta. In the inaccessible areas trees are mostly over-mature and often unsound.

Natural regeneration—Natural regeneration is in deficit on the whole. Some regeneration of *lampate*, *malata*, *siris*, *chikrase* and *kadam* (*Anthocephalus indica*) in the Lower Hill Forests, *chilaune* and *maura* in the Middle Hill Forests, *utis*, *saur*, *pipli*, *arupate*, *kapasi*, *kawla* and hemlock in the Upper Hill Forests, and hemlock and silver fir in the Alpine Forests have been noticed. Regeneration in Alpine type is rather poor.

In the Kurseong Division the Hill Forests may be divided into 3 zones:

The Lower Zone (up to 2,500', Champion Group 3B/C2).

The Middle Zone (2,500' to 4,000', Champion Group 7B/C1) and The Upper Zone (4,000' to over 7,500', Champion Group 10B/C1).

In the Lower Zone *sal* is the chief of the valuable species found and stops short at 2,500 feet. The size attained by *sal* is intermediate between that

of the high level and low level *sal* and constitutes a third sub-type of *sal* which may be called the 'hill type'.

In the Middle Zone, *tun*, *Panisaj*, *chilaune*, *lampate*, *kutus*, *gokul*, *siris*, *mandane* and a host of other species commonly grow to a magnificent size. For example, a very big *panisaj* (*Terminalia myriocarpa*) tree which appeared to be quite sound, measured 18 feet 7 inches in girth at 7 feet 6 inches from the ground, uphill side, having an estimated volume of 490 cubic feet in the bole alone. The soil being derived from the Daling rocks is more fertile than that covering the sand rock and gneiss.

In the Upper Zone, *tun*, *panisaj*, *kimbu* and walnut grow up to 6,000 feet. Above 6,000 feet are found *buk*, *champ*, *pipal*, *tun*, laurels, maples, etc. At this height trees are subject to wind pressure and are unpromising in appearance largely owing to the mass of orchids, mosses, and other epiphytes on the branches of the older trees rendering them liable to break off. The stems are of very irregular shape and often deeply buttressed.

The Kurseong Forest Division has a large plains forest. The various types of plains forest are detailed below:

Khair-sissu (Champion's group 6/1s-2)—In the beds of the Mahanadi, Sivok, Tista, Rakti, Balasan and Mechi rivers among *kashila* grass (*Saccharum spontaneum*), *khair* (*Acacia catechuoides*) and *sissu* (*Dalbergia sissoo*) form an open forest. The tree crop is usually made up of *khair* occurring almost pure, *sissu* appears in much smaller quantities mixed with it. A sprinkling of *gineri* (*Premna* spp.), *simul* (*Bombax malabaricum*), *siris* (*Albizia* spp.), *phaledo* (*Erythrina stricta*), and sometimes *pitali* (*Trevis nudiflora*) is also found. These gradually increase in quantity as *khair* and *sissu* get older and sparse, and finally replace them. The crop is even-aged in groups or strips, girth classes being ranged in an ascending order from the river towards more stable land. Reproduction of *khair* and *sissu* appears on new soil only. The crop is comparatively thick in the Mahanadi bed. Trees over 3 feet in girth are rarely met with and only in the Rakti and Mechi forests. The ground is constantly in danger of being washed away and the crop is liable to fire. Although the area occupied by this type of forest is considerable the total stock of *khair* and *sissu* is not large.

Simul-siris [Champion's group 3b/2s-7(b)]—Mixed with the above and spreading further inland on older soil, *simul* (*Bombax malabaricum*), *siris* (*Albizia procera*), *latikaram* (*Hymenodictyon excelsum*), *karam* (*Adina cordifolia*), *phaledo* (*Erythrina stricta*), *pitali* (*Trevis nudiflora*), *Dalbergia stipulacea*, *Crataeva unilocularis*, *maina* (*Tetrameles nudiflora*) and other similar species are found in rather open forest. *Kashila* grass

(*Saccharum spontaneum*) gradually gives place to broader-leaved grass, *bata* (*Saccharum narenga*), and finally to a tangled mass of straggling climbers. This type occurs adjoining the regions of *Khair* and *sissu*. *Kainjal* (*Bischofia javanica*) and *chalta* or *panchphal* (*Dillenia indica*) are occasionally found in most places in this type. *Simul* (*Bombax malabaricum*), *latikaram* (*Hymenodictyon excelsum*) and *phaledo* (*Erythrina stricta*) of suitable size for sawing have nearly all been felled for box planks; other species remain. The progress of regeneration is fair, but much hampered by climber and undergrowth.

Tun khamari (not distinguished by Champion but included in the list): Next appears a type containing a number of valuable species interspersed with the species of the foregoing type and imperceptibly passing into the *sal* type. The soil here is richer. The following are among the common species: *latikaram* (*Hymenodictyon excelsum*), *tun* (*Cedrela toona*), *khamari* (*Gmelina arborea*), *odal* (*Sterculia villosa*), *maina* (*Tetrameles nudiflora*), *dudhi* (*Wrightia tomentosa*), *sigalphusra* (*Grewia vestita*) and a few scattered *sal* with *kainjal* (*Bischofia javanica*), and *chalta* (*Dillenia indica*) occasionally in moist areas as before. Many of the above timber species are much sought after with the result that all good mature trees have disappeared and, in their place, a mass of undergrowth and creepers has come up, and seedlings of the better species are only found here and there. From among the undergrowth grass has disappeared, but straggling shrubs and climbers have increased, *Millettia auriculata* being one of them. *Coffea bengalensis*, a harmless shrub indicating better soil, appears here. Plantations of various species have been formed in this type and in a part of the foregoing type of forests aggregating up to about 468 acres in extent.

Sal forests—*Sal* occurs gregariously still further from the river on well-drained deep loam. Though gregarious it is generally mixed with a varying proportion of other species and occurs in blocks of any size down to small isolated groups separated from one another by other types of forest. In some places, such as in parts of the Central and Taipu blocks of Bagdogra Range, *sal* occupies raised ground surrounded in the rainy season by water, where the soil bristles with fine wiry roots of cane and other shallow-rooted species. Such tracts have been omitted from the *sal* working circle. *Sal* also occurs very much scattered in dry-mixed forest as in the north-west of the North Sivok block and in the west and north of the Upper Champasari block. *Sal* of fair density occurs in the Balasan block though the soil here is coarse and decidedly of recent origin.

Sal is absent for no apparent reason from certain tracts, such as a part of the Hatisar and Lower Champasari blocks. Mention is made in old annual reports of cultivation in the upper part of the Hatisar and Champasari blocks. It is likely

that helped by successful fire protection *kukat* has filled up abandoned village sites to the exclusion of sal. Such areas have been included in the Sal Working Circle, although containing no sal.

Regeneration of sal and of all other useful timber species throughout, is very deficient. Of the valuable miscellaneous timber species mature trees over 5 feet in girth are scarce. Prior to successful fire protection sal regeneration was abundant, under present conditions it has practically ceased and unless regenerated artificially sal will eventually disappear from the greater part of the area.

Sub-types of the plains sal—The water table in the Dalkajhar being high, the height growth of sal in this region is poorer than that in the Panchenai and Sivok blocks. The Dalka sal is, therefore, distinguished here as (a) the low-level sal [cf. Champion's Group, 3b/2S-5(a)/D3], as distinct from the Panchenai sal which will be called (b) the high-level sal [cf. Champion's Group, 3b/2S-5(a)/D2].

Low-level or Dalka sal [cf. Champion's Group, 3b/2S-5(a)/D3]—The low-level sal frequently alternates with cane brakes and patches of pure evergreen forest. The associates of sal here are mostly evergreen species, the most typical being laurels (*Lauraceae* especially *Machilus* spp.), chilaune (*Schima wallichii*), bhalukath (*Talauma hodgsoni*), katus or chestnuts (*Castanopsis* spp.), bhadrase (*Elocarpus* spp.) with a lower storey of lahasune (*Amoora rohataka*), *Acronychia laurifolia*, *Ilex godajam* and *jhingni* (*Eurya acuminata*). The canopy of the composite crop is always complete; in addition an under-storey of shallowrooted brushwood prevents the sun reaching the ground through the foliage in the upper canopy. As a result of regular cutting, climbers in the sal forest are kept in check, but they abound in evergreen areas. Young reproduction of sal is almost absent, but poles down to 2 feet in girth are found here and there in the southern blocks of the Bagdogra Range. About 595 acres of forests have already been regenerated by planting.

High-level or panchenai sal [cf. Champion's Group, 3b/2S-5(a)/D2]—Near Sukna and Sivok, where the water table is low, sal shows its finest growth. Typical associates of sal here are deciduous and fire-resisting, though evergreen species also occur. The most common are barra (*Terminalia belerica*), odal (*Sterculia villosa*), phirphire (*Firmiana colorata*), sidha (*Lagerstroemia parviflora*), tantri (*Dillenia pentagyna*), chilaune (*Schima wallichii*), pakasaj (*Terminalia crenulata*), kumbhi (*Careya arborea*), guenyhlo (*Callicarpa arborea*), patmero (*Litsea polyantha*), parari (*Stereospermum tetragonum*) and simul (*Bombax malabaricum*). The conditions as regards regeneration, canopy and climbers do not differ appreciably from those in the foregoing sub-type, but cane-brakes are absent. *Coffea bengalensis*,

Clerodendrom infortunatum and *Galemi* (*Leea* spp.) form a part of the undergrowth, the first appearing in drier localities. Young pole crops and reproduction of sal are rare. Wet-mixed forests of limited extent are here and there enclosed within sal areas. About 1,394 acres of forest were recently regenerated principally with sal by plantation.

Wet-mixed (cf. Champion's group, 3B/2S-4)—The wet-mixed type of forest is borne on moist soil and is scattered throughout the high-level and low-level sal forests. The component species are all evergreen; reproduction and poles of important species are few. The canopy and undergrowth are thick and climbers rampant. Dampness of the soil may be ascribed to two causes, namely, high water table and bad drainage. Where the first named condition prevails, lathar (*Artocarpus chaplasha*), champ (*Michelia champaca*), malagiri (*Cinnamomum cecidodahne*), dehua or borhar (*Artocarpus lakoocha*), ambake (*Jambosa* and *Eugenia* spp.), kawla (*Machilus* spp.), lali (*Amoora wallichii*), gokuldhip (*Canarium sikkimense*) are among the important tree species with cane as an undergrowth or climber. This may be called the evergreen sub-type. Cane forms the principal crop where soil is damp due to the combined effect of high water table and bad drainage.

Dry-mixed (cf. Champion's Group-3B/E-6)—The dry-mixed type occurs on high-level alluvium at the foot of the hills. This type contains a smaller number of species than the other types produced on deep loam, and the trees composing it are less closely packed. The alluvium here is coarse and the ground surface has an appreciable slope; percolation and surface drainage are therefore rapid and the soil dries quickly. The smaller number of species and their sparseness are probably due to lack of moisture in the surface soil. The soil though dry is deep so that seedlings once established do well and attain a high quality. Only deciduous species are found here in the top canopy, e.g., sal (*Shorea robusta*), odal (*Sterculia villosa*), pakasaj (*Terminalia crenulata*), parari (*Stereospermum tetragonum* and *S. suaveolens*), sidha (*Lagerstroemia parviflora*), maina (*Tetrameles nudiflora*), khamari (*Gmelia arborea*), and barra (*Terminalia belerica*). The canopy is fairly open and undergrowth thin, consisting of *Coffea bengalensis* and other plants but no *Clerodendron infortunatum* which is found on moister soil.

In the Kalimpong Forest Division the types of forests found are more or less similar to those found in Kurseong and Darjeeling. No detailed description is therefore required. The forests are divided in six main types:

- (1) Riverain,
- (2) Low Hill Forests (300 to 2,500 feet),
- (3) Middle Hill Forests (2,500 to 5,000 feet),
- (4) Upper Hill Forests (5,000 to 8,500 feet),

- (5) Conifer Forests (8,500 to 9,500 feet), and
- (6) Rhododendron Forests (9,000 to 10,000 feet).

The following is an account of injuries to which the various types of forests are liable:

Climbers—In the Lower Hill Forests, a considerable amount of damage is done by climbers in plantations and high forests. *Acacia pinnata*, *Dalbergia stipulata*, *Mucuna pruriens*, *Millettia auriculata*, *Bauhinia vahlii*, and *Tinospora cordifolia* are the most obnoxious ones. Digging them up with their roots after the coupes have been burnt is a proven method of eradication, but it involves a considerable amount of labour. In the case of *Tinospora cordifolia*, burning the same after pulling it down twice a year for three years repeatedly is a successful method of eradicating the same.

Weeds—Weeds grow luxuriantly in plantations in the Lower Hill Forests and repeated cleanings are necessary. Invasion of *assam-lota* and *Lantana camara* is very serious. In the Upper Hill Forests, *aselu*, *sisnu*, *asare* and *maling* are very troublesome.

Fungi—*Polystictus sanguinia* and *Polyporus shoreae* are occasionally found on *sal* (former on converted timber); but several species of *Polyporus* are very commonly noticed on *buk*, *phalant* and hemlock.

Epiphytes—*Loranthus* occurs on *gamari* and walnut and does much damage to them. *Viscum album* occasionally occurs specially on *phalant* in Senchal and Ghum-Simana Ranges; but its injury is not appreciable. Mosses and Epiphytes are abundant and the former are source of fire particularly in the dry season.

Insects—*Hypsiphyla robusta*, the twig-borer of *tun* and *chikrase* is dangerous to pure young plantations of these species. *Urostylis punctigera*, the *champ* bug is also serious to pure young *champ* plantations. A species of *Phassus* does considerable damage to *utis* and *mithe champ*. *Cryptomeria* is also found occasionally attacked by it. *Euproctis latisfascia* defoliates young *sal* seedlings in rains. *Hoplocerambyx spinicornis*, the longicorn beetle is occasionally found on dead *sal*. *Gmelina arborea* is defoliated by *Calopepla leayana*, but not dangerous.

An insect produces witches'-broom on *utis*. Serious injuries have been noticed in the Gaddikhana block of Senchal Range.

Betocera horsfieldii does considerable damage to walnut by making borings into its stem.

Rynchitis bucklandia is a shoot borer of *pipli*.

Wild animals—A certain amount of damage is done by deer and pigs in plantations in the Lower Hill Forests. Monkeys are fond of young carrot

roots of *sal*. Bear has been found stripping off bark of *Cryptomeria* in the plantations in the South Rimbik block of Singalila Range.

Wind and hailstorms—Wind does considerable damage to tender leaders and branches of silver fir; and the result is that most of the trees are without leaders and their side branches often take the place of their original main leaders.

Hailstorms do damage to young crops during the months of March to May.

Forest—It is dangerous to nurseries and new plantations. Seedlings as high as 2-3 feet are required to be transplanted so that the upheaval of soil at their base caused by frost cannot uproot or displace them. Nurseries are to be well-sheltered.

Snow—This also does the same kind of damage in plantations as frost. Moreover, it breaks the branches and leader of trees. Silver fir is damaged by it to some extent.

Erosion—In view of the heavy seasonal rainfall and of the steep nature of the terrain the evils of erosion is markedly noticeable during the monsoons. Erosion tends to be more serious in clear-felled areas. Therefore in order to minimise soil erosion, cultivation in clear-felled areas by *taungya* is restricted to the very first year.

Landslips—The occurrence of landslips is an annual feature in the monsoons. The existing more dangerous ones are the Likubhir (Mangwa block), Sambong (Sambong block), Monggong (South Rimbik block) and Paglajhora (Little Rangit block) slips. The last is the largest and the most dangerous one which has seriously affected communications with Tonglu and Singalila Ranges. Protective measures, such as construction of check dams, contour drains have been undertaken.

In June 1950, extremely heavy and concentrated rainfall all over the district of Darjeeling resulting in numerous landslips of varying magnitude caused indescribable misery to the people by demolishing many houses, destroying lives, interrupting supplies of foodstuff, drinking water and electricity, and damaging seriously all communications and railway lines, the complete restoration of which will yet take some years. Even forest areas did not entirely escape from the catastrophe, and certain lines of communications, many plantations, high forests and some buildings suffered serious damage, specially in the Tista, the Great Rangit, the Little Rangit, the Rambli and the Pachimkhola valleys.

Earthquakes—Shakes of earthquakes were felt in 1842, 1849, 1863, 1869, 1897, 1930 and 1934, but no appreciable damage was done to the forests.

Grazing—Though open grazing has its adverse effect on soil and regeneration, it is not yet possible to introduce rotational grazing without

jeopardising the interest of the public greatly. Controlled open grazing is considered necessary for some more years to overcome the fire damage caused in the past.

Pasturing—The Senchal Pasture block was formed in 1879. The lower area of this block has suffered much from illicit lopping, pollarding, theft of trees and almost entire removal of the undergrowth owing to its proximity to the densely populated location of Ghum and Keventers' Farm. The result has been much erosion of soil and landslips. The raising of fodder species (grasses, shrubs and trees) has therefore been considered necessary.

Stall-feeding—Cattle are stall-fed in the forest in departmental *bathans*. The owners collect fodder from the adjoining forests. There are open fenced-in areas around the stalls, in which the cattle can exercise.

Fodder cutting and lopping—Excessive cutting of fodder has not only seriously affected the natural recruitment of all forest species, but its continual operation has also reduced the soil cover to the minimum in several places specially in the Senchal Pasture, Rangbul and Dooteria blocks and already invited erosion and landslips. Cutting of fodder is required to be prohibited in the last two blocks.

Lopping of trees for fodder or for fuel has so seriously deteriorated the existing forest crop in the abovementioned blocks that without artificial regeneration the losses cannot be recouped. Collection of dry sticks and dry firewood is required to be prohibited in these two blocks.

Fires—The following extracts are reproduced from the VIIIth Working Plan for the Forests of the Darjeeling Division, page 14, paragraph 44:

Damage from fire is practically non-existent except in the Upper Hill Forests of Tonglu and Singalila, and the Valley forests. In the Upper Hill Forests the risk of fire is great owing to the dense bamboo undergrowth and the potential damage enormous. The results of the fires of 1878, 1879, 1882, 1903 and 1909 are still visible in the charred and blackened stems of trees towering above the pure bamboo areas which previously contained well stocked tree species. Up to 1939 fires had been effectively controlled by a system of fire protection; and there are now evident signs of the extension of tree growth into pure bamboo areas. In 1939 fires again occurred, a report on which is available in the Divisional Office. In the Valley forests fires to a greater or less extent occur annually, mainly in pure *Shorea robusta*. These fires are generally ground fires and do not destroy the tree forest as in the Upper Hills. Damage, however, does occur in that the establishment of natural reproduction of *Shorea robusta* is retarded and natural reproduction of other species is destroyed. It is also probably the primary cause for unsoundness in *Shorea robusta* and other species which have been in the path of the fire.

The State of West Bengal earns a considerable revenue from the forests and forest products. In almost every forest there are forest villages or *bastis*, the inhabitants of which make their living by employment in them. In Darjeeling district itself there is an enormous demand for charcoal and firewood. It has been estimated that the demand for charcoal in Darjeeling town alone has increased four times of what it was before the Second World War. In 1949-50 the Kurseong Division supplied to Darjeeling 20,466 bags of charcoal from departmental coupes, the Darjeeling Division supplied 5,879 bags of charcoal from departmental coupes, and private purchasers of coupes supplied 55,828 bags of charcoal. The annual requirement of Darjeeling town has been estimated at 120,000 bags of charcoal.

There is also a great demand for timber for constructional purposes, which increased suddenly after the landslides in 1950, and a steady high demand for high grade furniture and veneer timber like walnut, *panisaj*, *champ*, etc. There is a very high demand for fodder but the demand for firewood and box-planking overtops other demands. *Sal* is in demand for railway sleepers and heavy constructional works. A great variety of hard wood is sold together with varieties of match wood timber for plywood and box-planking. There is a small demand for pulp wood and such rare wood as spruce. The minor forest products are bamboo (*choya*) and maling, stone, cane, honey and medicinal plants, thatch grass, *sinkoli* (a variety of cinnamon), *tejpat*, *myrobalams*, soapnut or *ritha* (*sapindus detergens*) and jute seed. In the Darjeeling Division forest products are exported by railway, the metalled cart roads from Siliguri to Darjeeling, Siliguri to Tista Bridge, Ghum to Simana, Jorebunglow to Takdah, Sukhiapokri to Pokhriabong, Sukhiapokri to Manibhanjan, Manibhanjan to Batasi and by the Bijanbari-Darjeeling Ropeway. In the Kalimpong Division the important lines of export are the Tista Valley Road, the Lachen Road from Tista Bridge to Rangpur, the Rishi Road from Tista Bridge to Pedong *via* Kalimpong town, the Jangi guard Road and the Garubathan Road. The Forest Department maintains 196 miles of roads and pathways. There is a Ropeway from Kalimpong to Rilli. In the Kurseong Division there are the main arterial roads. In the rainy season a certain amount of *sal* timber is rafted with the help of plantain stems down the Mahanadi river from Siliguri Depot to Kissenganj. A great deal of rafting is done also in the Tista.

CINCHONA

The original home of cinchona was in the north-western part of South America, chiefly Bolivia and Peru. The antipyretic properties of its bark were probably known to the Jesuit missionaries in those countries but its introduction into Europe in 1639 is ascribed to the Countess of Chinchon, wife of the Spanish Viceroy of Peru. Quinine, the

essential principle of cinchona, was isolated in France in 1820 and the indiscriminate exploitation of the South American forests which followed led to the fear, later justified, of an early exhaustion of the natural sources of supply. Attempts were accordingly made to organise the cultivation of cinchona as the only means of ensuring continuity of supplies. A Dutch expedition to South America in 1853 under Hass Karl resulted in the introduction of plants and seed into Java, while the fruits of a British expedition under Clements Markham in 1859 to South America formed the basis of Indian plantations. For a long time the Dutch and Indian plantations have provided the only supplies of cinchona, but within the last three decades its cultivation has also been undertaken in a number of other countries the chief of which are East Africa, Central America, Malaya, Australia, New Zealand, French Indo-China and Korea. The Russian experiments with cinchona as an annual crop in the Caucasus region is an interesting development.

The bulk of the material from the Markham expedition was taken to Ootacamund in the Nilgiris, where Melvor with great zeal and energy set about the formation of a cinchona plantation. In Bengal the cultivation of this exotic species was entrusted to Dr. Anderson, then Superintendent of the Royal Botanic Garden, Calcutta, to whose labours, technical ability and judgment the success of the present plantations is largely due. In 1861 he was deputed to Java to study the methods adopted by the Dutch. He returned with a large number of healthy plants, some of which were retained for Bengal, the rest being sent to Ootacamund. In the meantime plants were raised in Calcutta from seed supplied by the Royal Botanic Gardens, Kew. The Bengal experiment started with plants from Java, from Ootacamund and a few from the Calcutta gardens. The first nurseries were tried at Senchal where, however, the climate proved too rigorous and the plants had to be transferred to a milder climate at Lebong. There they thrived and a suitable location for a permanent plantation was found at Rungbee on a spur projecting from Senchal in a south-easterly direction. Between 1861 and 1869 the main pre-occupation was with scientific and technical problems connected with the propagation and after-care of the plants. The initial difficulties overcome, the plantation grew and small harvests of bark began to come in from the year 1869-70. The plantation started with five species of cinchona: *Succirubra*, *officinalis*, *panudiana*, *micrantha* and *calisaya*. At first *succirubra* established itself as the most suitable species and this was the variety officially encouraged in Bengal, while in Java the Dutch were rapidly developing as the best yielder of quinine the "*calisaya*" and more especially a variety of it called the *ledgeriana*. Subsequent experience established *ledgeriana* also as a very suitable species for Bengal but *succirubra* held the field until some time between 1880 and 1890 when more attention was given to quinine as the best of

the alkaloid drugs and to *ledgeriana* as the best source of quinine, in preference to "cinchona febrifuge", a mixture of all the alkaloids of the cinchona bark for which *succirubra* was considered to be the more profitable source. At present the Bengal plantations concentrate mainly on *ledgeriana* together with a small proportion of a hybrid of *ledgeriana* and *succirubra* which was obtained by the crossing of the two species about the year 1900. In the Nilgiri Hills and other parts of Madras they have not been so successful with *ledgeriana*, the species mainly cultivated being *robusta*, *officinalis* and *succirubra*. *Robusta* is a good yielder specially adapted to higher elevations and its introduction into a few years ago has given results of good promise.

The plantation at Rungbee was gradually extended on the whole range lying between the Rungbee (or Rongjo) and the Riyang valleys. In 1887 an area at Sittong on an adjoining ridge to the south of the Riyang valley was taken in. In 1883 a plantation of 300 acres was started in the Rangjang valley but the rainfall proved too heavy and the plantation was abandoned in 1896. A plantation of 500 acres at Nimbung in the same tract was purchased in 1893 from the Bhutia Cinchona Association and was given up by 1889 after complete extraction of the standing crop. About the same time another standing crop of 170,000 lbs. just across the Rungbee valley and to its north was purchased from the Darjeeling Tea and Cinchona Association. Records also show purchases of bark from private planters in Sikkim about the same time. The cultivation of Cinchona by private estates in the Darjeeling district was made possible through direct State encouragement by way of supply of seed and seedlings at nominal rates. Private enterprises did not however continue for long, having proved uneconomical owing to a temporary slump in bark prices. The *District Gazetteer* published in 1947 says that the Rungbee and Sittong ridges constituting the Mangpu plantation had a total area of 12,000 acres and a standing crop of 4,000 acres. The year of these figures is not however mentioned in the *Gazetteer*. The Eighty-seventh Annual Report of the Cinchona Directorate, however, giving the figures for March 1949 gave the total area under the standing Cinchona crop in the Mangpu plantation as only 1,656 acres. In 1900 the Government started a second plantation at Munsong, then under Reserve Forest. The *District Gazetteer* of 1947 states that the plantation occupied a total area of 8,000 acres with about 3,500 acres under Cinchona. The Annual Report of 1948-9 gave the total acreage under Cinchona in the Munsong plantation to be 1,892 acres. In 1938 a third plantation was opened in the Rong block of the Kalimpong Forest Division where it was expected that a total area of 1,600 acres would be ultimately under Cinchona 400 acres having already been planted up by the end of 1943-4. In March 1949 the total area under Cinchona in the Rong plantation was 574 acres. A fourth plantation was started about 1945

in the Latpanchar group of blocks in the Kurseong Forest Division. In March 1949 the total area under Cinchona in the Latpanchar plantation was 264 acres. The total area under Cinchona in the four plantations of Mangpu, Munsong, Rongo and Latpanchar in March 1949 was 4,382 acres. The latest departmental estimate of the total acreage under Cinchona in the district is 6,500 acres (1953), yielding about 2 million pounds of Cinchona bark annually. In 1943-4 the Government aimed to reach an annual production of 100,000 lbs. of quinine within the next few years, corresponding to an annual harvest of 2.5 million pounds of bark.

The average yearly harvests of bark in the past have been approximately as follows:

				Average annual harvest
				lbs.
1869-70 to 1878-9	..	..	..	113,000
1879-80 to 1888-9	..	..	..	321,000
1889-90 to 1898-9	..	..	..	518,000
1899-1900 to 1908-9	..	..	..	533,000
1909-10 to 1918-9	..	..	..	565,000
1919-20 to 1928-9	..	..	..	646,000
1929-30 to 1938-9	..	..	..	1,200,000
1948-9	..	..	..	1,811,016

The first product to be manufactured in Bengal was a mixture of all the alkaloids of cinchona to which was given the name of cinchona febrifuge. The first year's output of 48 lbs. was obtained in 1874-5, and, after successful clinical trials, Government authorised its issue to the public in 1876-7. The method of manufacture was simple, consisting of extraction of the active principles of the bark by means of an acid and their subsequent precipitation from the extract by means of an alkali. The factory equipment was not elaborate and production capacity was small. In the 14 years between 1874 and 1887 (the year quinine was first produced at the factory) the total output of cinchona febrifuge was only 82,023 lbs. giving a yearly average of 5,858 lbs. The credit of developing a process for the manufacture of quinine similar to that used in Europe, without information of the details of the European method, is due to Mr. Wood, former Quinologist, and to Mr. Gammie, Deputy Superintendent of the plantations. In the first year 1887, the production of quinine was 331 lbs., the next year it rose to 2,000 lbs. The 10,000 lbs. limit was reached by 1895-6, while in another 10 years the capacity rose to 16,000 lbs. Thereafter followed a sudden jump to 27,000 lbs. as a result of the installation, in 1907, of new plant and machinery. There have been no major alterations to the factory or changes in the method of manufacture since. But with the help, from time to time, of small additions to plant and machinery and minor adaptations of process, production capacity has now been raised to 70,000 lbs. per year, an increase which has proved invaluable during the war.

Up to the end of the last century a part of the bark was extracted to give cinchona febrifuge alone and a part to give both that product and quinine; but the entire available supplies of bark are now extracted by a standard alkali process in which quinine sulphate is obtained as the primary product and cinchona febrifuge as a by-product. Both in the variety of products and in their quality the factory at Mangpu has made rapid strides in the last decade, the number of different products issued being over 32.

In the early days cinchona was propagated mainly from cuttings but, in the Bengal plantations and in Madras, it is now propagated from seed. In Java grafting is known to be the more common method but has not been adopted in India with any degree of success. The seed is very small and light, 60,000 to 70,000 seeds going to the ounce, and is harvested towards the end of winter. It is sown about March in specially prepared beds suitably covered. The seed bed consists mainly of sifted leaf mould. The nursery lines usually face north and the seed is broadcast and covered up with a thin layer of fine leaf mould. Germination takes 3 to 4 weeks and when half-an-inch high the seedlings are replanted in other beds, prepared as before, at a spacing of 1" x 1". These are transplanted once again after a few weeks into final nurseries at a spacing of 4" x 4". In these nurseries the plants are allowed to grow and are hardened by gradually increasing exposure throughout the winter until they are ready to be planted in the field after the early rains. Preparation of the land for planting requires a great deal of labour. Where it is occupied by heavy jungle, the forest is felled a year or two ahead and allowed to rot through the rains. In the winter the logs are cut up and removed and the land cleared with the minimum possible burning. Adequate measures have to be taken to prevent soil erosion. The land is then staked out at 4 feet intervals. Tallies or plant holes are dug to a depth of 18" and these are recovered after some exposure of the soil. As soon as the land has absorbed sufficient moisture the young plants are put out into tallies, care being taken to select a slight wet and cloudy day. The after-care of the plantation consists of keeping weeds down by sickling, aerating the soil by cultivation and removing dead and dying branches from the plants from time to time. From the third year, small harvests are obtained from the last process. At the end of the eighth year, all the plants are coppiced to give the first primary harvest. The coppiced plants throw out fresh shoots and have a fresh period of growth. Vacancies caused by death of plants during the first eight-year period are also now filled up by new seedlings. The block is taken care of for a further period of 8 years after which all the plants are harvested by uprooting. In the course of harvesting, the bark is removed from the root and stem by beating with a wooden mallet and from the branches by scraping with a knife: the

green bark is dried in the sun and drying is completed, if necessary, in an artificial drier.

In the factory the dry cinchona bark is first ground to a fine powder in a series of mechanical disintegrators. It is then mixed with slaked lime and a quantity of water just enough to make the powder moist. The mixture is kept for 24 hours during which the lime has a preliminary physical and chemical action. It is then tipped into extraction vats containing enough water to provide adequate mixing, and enough mineral oil to dissolve the alkaloids liberated by the caustic soda subsequently added. The contents of the extraction vats are heated by passing steam through coils fitted to them and stirred continuously by mechanical stirrers. The mixture is now allowed to settle and the layer of oil floating on the top and containing most of the alkaloids in solution is drawn off. Extraction is completed by heating with fresh quantities of oil, after which the bark residue is discarded. The entire oil extract is again treated with a dilute solution of sulphuric acid to remove the alkaloids. The oil so treated is returned for use with fresh batches of bark and the acid extract of alkaloids is neutralised with caustic soda while still hot. The neutral solution, on cooling, deposits crude quinine sulphate which after further cooling for 48 hours is filtered off through a centrifugal machine. The mother liquor from the mixture is treated with excess of alkali to yield the by-product, cinchona febrifuge; this comes down as a buff precipitate, is filtered on canvas, washed, dried and powdered before being packed in tins. The crude quinine sulphate removed by filtration is first washed with cold water and then dissolved in hot water. The solution is clarified by boiling with activated carbon and filtered through cloth to give a clear solution. The solution is run into long shallow cooling troughs by night and by next morning the quinine sulphate is obtained in the form of fine white crystals. These are removed by filtering through a centrifugal machine, put on trays into a drying room and, when dry, removed and packed. A part of the quinine is packed as powder, a part is converted into tablets; small quantities are converted into quinine hydrochloride, quinine bihydrochloride or other salts.

The record of bark and quinine production in the 1920's and 1930's disturbed the Local Government and it was felt that work was not proceeding as it should in the cinchona plantations. In 1938 Messrs. C. C. Calder, Superintendent of the Royal Botanic Garden, and Superintendent of Cinchona Cultivation, Bengal, and O. M. Martin, Secretary, Forest and Excise Department, drew up a scheme of reorganisation in 1938 which sought to divide the Cinchona Department and to substitute a divided control for a single control. The plantation branch was to be made independent of the factory and laboratory and placed under the Conservator of Forests, while the factory and laboratory would deal directly with the Government. The distribution work which was being

done by the Presidency Jail would also be transferred to the factory side. Dissatisfied with this reorganisation scheme Government appointed a Special Officer to report on the working of the Cinchona Department. In November 1939 B. Das Gupta, Special Officer, produced a comprehensive report on which the Finance Minister N. R. Sarker recorded in January, 1940, a masterly note rejecting Messrs. Calder and Martin's scheme of reorganisation. It was evident that the scheme of 1938 had, as the Finance Minister put it, "had its origin not in inherent requirements of cinchona but in extraneous considerations". The Finance Minister was of the opinion that the Factory and the Plantation were so integrally connected that it was impossible to separate them without doing harm to both. They should therefore be under a unified control and the Plantation, the Factory and Distribution should form three separate branches of one department under a common administrative head. Further, there should be a whole-time Superintendent with headquarters at Mangpu, who should be the Head of the Department and communicate with the Government. Accordingly with effect from the 1st October 1940 there was a Superintendent of Cinchona, Bengal, and the unified scheme was implemented from 1941-2. A new Directorate was established called the Cinchona Directorate, which passed under the control of the Commerce and Industries Department and so it has remained ever since.

There are several varieties of cinchona plants in the four plantations of which the Cinchona Ledgeriana is the best. According to Wilson the plantation of Cinchona Ledgeriana in Darjeeling has no equal in India. This species has a definite method of cultivation and harvesting. Seedlings are transplanted twice before they are put out in the plantation and they remain in the nursery for about 14 months. They are planted at a space 4 ft. x 4 ft., pruned and thinned during the third to seventh year, coppiced in the eighth year, pruned and thinned again during the ninth to the fifteenth year and uprooted in the sixteenth year. There are other varieties called the Robusta, the Hybrid and Bark under the Russian method. The following table shows the total acreage of cinchona under plants of different age groups in March 1949 (acres): •

Age group	Mangpu	Mun- song	Rongo	Latpan- char
(A) 16 Years and over	42.5	20.9	..	..
(B) 11 to 15 years	176.4	76.8	31.5	..
(C) 6 to 10 years	492.2	580.1	90.5	5.1
(D) 5 years and under	944.7	1,213.7	448.4	259.0
Total	1,655.8	1,891.5	570.4	264.1

There are four divisions in the Mangpu plantation: Mangpu, Rungbee, Labdah, and Sittong. In the Mungsong Plantation there are four divisions, Kashyem, Munsong, Burmiak and

Sangseer. The average quinine content of the bark of the four Plantations was as follows:— Mangpu 3.50 per cent., Munsong 4.80 per cent., Rongo 3.82 per cent., Latpanchar 3.89 per cent. 1,811,016 lbs. of bark produced 67,285 lbs. of Quinine Sulphate and 27,704 lbs. of Cinchona Febrifuge in 1948-9. The cost of Quinine Sulphate in bark in 1948-9 worked out at Rs. 5.18 per pound. The cost of extraction, packing and delivery to rail-head worked out to another Rs. 4.63 per pound. Therefore the total cost of each pound of Quinine Sulphate worked out at Rs. 9.81 per pound delivered at the nearest railhead.

The Quinine Factory at Mangpu has a plant capacity for production of 63,000 lbs. of Quinine Sulphate B.P. 1948 and 33,000 of Cinchona Febrifuge annually by consuming two million pounds of cinchona bark. All sulphate of quinine manufactured in the Cinchona Factory strictly conforms to the B.P. 1948 standard. This latest standard enjoins greater purification of quinine. For this purpose the factory has been equipped with some new and modern plants and machinery and a few others are proposed to be purchased during 1953-4. The factory has a well-equipped laboratory where technical problems regarding the manufacture are studied and solved.

The total labour employed in the 4th Government Cinchona Plantations is 5,360, consisting of 1,970 men, 2,500 women and 890 *chokras*. The factory employs 140 men only. The daily rates of wages (including dearness allowance) of labour are Re. 1-9 for men, Re. 1-2 for women and as. 12-6 per *chokra*. All workers in the Cinchona plantations and the factory are provided with free houses, which are repaired at Government cost. With each house a minimum of half acre of land is allotted for growing crops, gardening and poultry rearing. The workers and their families up to a total of 4 members (including self) are supplied with ration at concessional rates. The workers and their families receive free medical aid from the 3 plantation hospitals, each of which has its separate staff of Medical Officer, Componder, Nurse and Lady Health Visitor. There are a number of primary schools scattered over the 4 plantations and an adult education centre has also been opened. There is a well organised Labour Welfare Centre at Mangpu. Two more Labour Welfare Centres will be started in two other plantations shortly. Although the workers are employed on 'no work no pay' basis, they are allowed sick leave with full pay up to a maximum of 20 days in a year, 10 of which can be carried over to the next year, if not availed of during the current year. They are also allowed 10 days' leave with full pay during the Pujas. The women workers are allowed maternity benefits in the form of rest with full pay for 3 months (6 weeks prior to and 6 weeks following confinement).

In recent years the high cost of production and the competition of synthetic drugs have hit

cinchona plantations all over the world particularly in India. The position of plantations was reviewed in August 1949 by the Government of India which appointed a Special Cinchona Committee to report on the position of Cinchona Plantations in Darjeeling and Madras. The Special Cinchona Committee consisting of six members submitted their report in March 1953. This committee was of the opinion that although expansion in West Bengal was difficult, the method of recording areas under cinchona was unsatisfactory and should be standardised, there was lack of systematic data on the yield of bark and on the yield of quinine, supervision over labour remained to be improved and the process of accounting might be made more businesslike. But the main "crux of the matter lies in the initiation of a proper sales drive and its success". A second conference on the quinine policy of Government of India is going to be held shortly to take major policy decisions.

The Special Cinchona Committee laid much stress on finding out the optimum condition for the cultivation of cinchona. Experiments on proper scientific lines in this direction will be carried on from 1953-4 in the proposed Research section under the Cinchona Directorate.

The average quantities of quinine sulphate and of other alkaloids put on the market and the average prices obtained are as follows:

Period	Quinine Sulphate		Cinchona febrifuge and other alkaloids	
	Annual average	Average price	Annual average	Average price
	in lbs.	per lb.	in lbs.	per lb.
		Rs. a.		Rs. a.
1909-14 ..	14,000	No record	2,400	No record
1914-19 ..	29,700	21 0	5,900	5 8
1919-24 ..	21,600	34 0	7,900	8 8
1924-29 ..	27,600	21 8	12,600	10 0
1929-34 ..	42,200	19 0	20,300	10 0
1934-39 ..	47,700	19 0	23,300	10 0
1939-44 ..	59,913	27 0	31,927	12 0
1948-49 ..	42,124	44 0	6,823	19 0
(1948 B.P. standard)			(Cinchona febrifuge only)	

OCCUPATIONS, MANUFACTURE AND TRADE

The great important industries of the district—tea, forests and cinchona have already been mentioned. In this section brief accounts will be given of other main occupations and manufactures:

Although the district has not been the scene of military operations, it was used as the starting point of one or two small expeditions into Sikkim and as a base from which transport was recruited and supplies obtained or forwarded for operations against the Tibetan forces in 1880 and 1903. It has had close connection with the army not only

because it contained four cantonments used mainly in the hot weather for British troops but also because it occupies a strategic position in relation to Nepal and Tibet and lies astride the important line of communication between India and detachments of the Army on the trade route to Lhasa. The district has a number of military camping grounds and at Ghum there is a recruiting depot for Gurkhas. By arrangement with the Nepal and Indian Governments the British Government, too, have a Gurkha Recruiting Depot at Katapahar for recruiting Gurkhas from Nepal only.

In the year 1844 Senchal, 6 miles south-east of Darjeeling, was chosen as a site for a cantonment and it was occupied by troops for over 20 years. It is over 8,000 feet above sea-level and its depressing climate and excessive rainfall caused it to be abandoned in 1867 in favour of Jalapahar which is 1,000 feet lower and is closer to Darjeeling. Nothing is now left of the Senchal barracks but a few solitary chimneys and ruins on the golf course and a few graves in a little cemetery near the road along the eastern side of the Jalapahar ridge where there is a Cross erected in memory of the officers, non-commissioned officers and men who died at Senchal during the years 1844-66.

Jalapahar cantonment is bounded on the east by the Calcutta Road, on the west by the Auckland Road and on the south by the Cart Road leading up to Jalapahar from Jorebunglow. It was established some time between 1842 and 1848 when barracks had been completed for 150 convalescent soldiers from regiments in the plains. It was then described as a Hill Depot. When the Senchal cantonment was abandoned in 1867, the barracks at Jalapahar were enlarged to accommodate 550 men. Katapahar is included in the Jalapahar cantonment and was occupied by mountain batteries until the year 1900. In 1848 the permanent staff of the Jalapahar Depot was one Commandant, one station staff officer, one assistant surgeon, one sergeant major, one quartermaster sergeant, seven duty officers and 150 men. Attached to the depot were mountain battery guns, howitzers and mortars with 25 artillerymen under the command of a subaltern of artillery. In more recent times Jalapahar has been the summer headquarters of the Commander of the Presidency and Assam District from Fort William.

Lebong cantonment is below Darjeeling at an altitude of just under 6,000 feet above sea-level. In 1882 when it was first created it was part of the Jalapahar cantonment and was 82 acres in extent. The barracks and parade ground were laid out between 1882 and 1890 and in September 1895 it was opened as a separate cantonment. Its present size is 198 acres and in peace time a battalion of Infantry is usually stationed in it.

Land was acquired in 1910 for a cantonment for two Gurkha battalions at Takdah or Hum

below the 6th mile on the Peshok Road. Eight hundred and ten acres were acquired and buildings and parade grounds were laid out. Climatic conditions made it unsuitable for a cantonment and it was closed in 1926. Some of the land was leased to tea companies and the rest returned to the Government of Bengal.

In 1922 there were ten camping grounds in the district but relinquishments have reduced the number to four which are managed by the Central Public Works Department. At Siliguri the ground is over 12 acres and at Kalimpong nearly 6. The other two are at Tista Bridge and Kurseong.

Apart from recruiting through the Gurkha Recruiting Office, the district has supplied numbers of recruits for technical and ancillary war services through other agencies. A number of recruiting offices were opened in the district through which candidates were recruited for training as fitters, turners and artisans in munitions factories. Other Technical Recruiting Offices were opened for personnel with technical skill and numbers of motor drivers, artificers and tradesmen were recruited for service with the fighting forces or in factories.

Nepali labourers were found most useful on important road projects on the Burma frontier and many went from the Darjeeling district. The first call to Darjeeling to provide labour for the Indian Tea Association's Eastern Frontier Projects Organisation came at the end of July 1942, when 1,200 volunteer porters were asked for to work on the Aijal Road under the guidance of two Darjeeling planters. From this comparatively small beginning the Darjeeling Planters' Association went on to provide larger and larger drafts of volunteer labourers from Darjeeling and Kalimpong for vital work on the Manipur and Ledo roads. In October 1942 a contingent went to the Manipur Road and in May 1943 began the Darjeeling connection with the famous Ledo Road: several thousand labourers went forward for as long as five months and on their return home were replaced by others. These contingents were all arranged by the Darjeeling Planters' Association and went forward as complete units under charge of Darjeeling planters. They were manned by volunteers drawn from all classes and creeds in the district.

The response of the district to calls for personal services in connection with the 1939 and previous wars has been noteworthy and is in accord with the fighting traditions of the great majority of the inhabitants of the district. Many Nepalese after service in the Army have retired and settled in the district. Many more undoubtedly followed their example and after the Second World War, there was a large population in the district who established a strong claim for special individual consideration in post-war reconstruction plans.

Apart from personal service, the district has subscribed well to war funds and this gives additional force to a claim that in post-war planning the district itself deserves special treatment.

Industries and manufactures—The main industry of the district is undoubtedly ordinary agriculture and the number of persons living in rural areas outside plantations of tea and cinchona or forest villages and depending on agriculture is 140,280. These are to be considered engaged in or dependent on the occupation of agriculture and its various processes. Land leased for tea provides a total population of 69,590 self-supporting persons. Many of these persons are engaged part-time in ordinary agriculture on land leased for tea. It has been roughly estimated that one adult per acre of tea is required to keep it properly cultivated and as there are about 67,526 acres under tea in 1953 the effective labour employed on tea cultivation would be the same number of persons. In the actual manufacture of tea apart from its cultivation, little labour is needed.

The field cultivation of cinchona previous to manufacture of the final alkaloid products engages a population of 5,360 labourers. Actual manufacture employs very few persons, only 140.

Government forests engage a population of 2,150 labourers of which most are employed in the conservation and regeneration of trees. Connected with Government forests are the industries of extraction (including sawing and transportation) and of charcoal burning.

Charcoal manufacture—Charcoal burning is quite an important industry. In normal times before the Second World War more than 150,000 bags of charcoal were consumed per annum in the district. Now in Darjeeling town alone about 120,000 bags are needed every year. It is mainly needed for domestic purposes but certain quantities are used in the small industry of *kukri* making. In war time the demand rose rapidly partly because of the great increase in visitor population and partly for the use of motor vehicles adapted to work on producer gas made from charcoal. It has been estimated that consumption rose to over 350,000 bags per annum during the war.

The process of manufacture is to burn wood in a restricted supply of air. The heavy cost of transportation makes primitive methods of burning in the forest profitable and this has probably prevented the adoption of more efficient mechanical methods. The local method provides a large number of people with a means of subsistence at a time when they have no work in their fields.

Kilns or *bhattis* are made at convenient flat sites in the forest near the trees to be felled. Sometimes the hillside is cut to make a large enough level site or else some level place is selected in the dry bed of a stream. If necessary, props are used to hold up the kiln on steep hill-sides in which

sufficiently large level areas cannot be cut. The largest logs are placed at the bottom and smaller logs above them until finally, at the top, branches and brush wood are stacked, the object being to reduce air spaces to a minimum. Big logs have to be levered into position and the manufacturer is helped by neighbours without remuneration, himself helping them in return.

The volume of an average kiln is 1,500 cubic feet and the whole stack is covered with earth 6 to 9 inches thick with a small opening 3' x 3' at the bottom running right through to the middle. Some small openings are made in the earth at the top and sides so as to give a draught when the kiln is first fired. After two days when the fire is well alight all holes and the opening below are completely closed and the wood inside burns without air. As it burns it contracts, and cracks form in the earth cover. These have to be carefully watched and plugged with green wood and more earth. A skilful charcoal burner has to be very vigilant particularly at night when the flame through the cracks can be easily seen and enables him to decide when the kiln has been completely burnt and should be opened. This stage is reached when the flame shows blue. The kiln is then broken from the side, wet earth is thrown on the charcoal and samples taken out to see if it has been completely and properly burnt: underburnt charcoal is brownish and overburnt is in small fragments mixed with ash, giving a very low output. When the burning is considered to be finished, the kiln is gradually broken at the side and the hot charcoal cooled with wet earth, sieved, bagged and carried to a cart road.

The burning of a normal kiln takes about three weeks and longer in the rains during which season mats are used to protect it from rain. The yield is about 10 to 12 cartloads, higher in the dry weather than in the rains when more of the wood is burnt to ash.

The entire process from the commencement of felling to the extraction of charcoal from the kiln takes one man about two months. During this time he is financed by the person who has contracted with the Forest Department to produce charcoal. After firing one kiln, the manufacturer begins to fell more trees in preparation for a fresh kiln.

In the Terai what is known as the Chinese method of charcoal manufacture has been adopted. A pit is dug in which wood is stacked. The stack is covered with iron sheets and it is fired through a hole in the centre. The iron sheets are effective in keeping out air and causing combustion to take place at a high temperature. Thereby a higher yield and more rapid manufacture are obtained.

As stated above, the high cost of transportation makes it profitable to manufacture charcoal in the forest at the place where trees are felled. Four carts are required to move 130 to 150 cubic feet of

wood: but from this quantity of wood 13 bags of charcoal or one cartload are manufactured: a man can carry two bags for distances up to 5 miles, but the equivalent amount of wood (20 cubic feet) would be a load for 10 men.

Charcoal costing is based on the cartload. Previous to the war the rates were:

Manufacture per cart load	..	Rs. 3-8 to 4-0
Carriage to cart road per cart load	..	13 annas
Carriage by cart road per cart load per mile	...	4 annas

Rates during the war increased to double the above although Government royalty was not increased. The result was that the sale-price in Darjeeling per bag increased from Re. 1-8 to Rs. 2-10 and in 1950 it rose to as much as Rs. 4 per bag.

Timber sawing—There is a small timber sawing industry at Siliguri. The most important saw mill is that owned and worked by the Forest Department of Government. This was started in 1927 to break a ring of purchasers who were keeping down prices against Government and for the conversion of second grade *sal* logs for which there was no market. The mill ran at a loss until it was remodelled in 1940. This resulted in an increase in daily output from 180 cubic feet in 1939 to 1,000 cubic feet in 1944. Wastage was reduced from 35 per cent. to 20 per cent. and since 1940 the mill has been working at a profit. It is a registered factory under the Indian Factories Act and employs about 250 labourers of whom not more than 2 per cent. are hillmen.

There are now several private mills which have circular saws for breakdown of round logs and circular resaws.

In addition to the mills, there are a large number of sawyards at Siliguri, Naxalbari, Bagdogra and Sivok: these yards employed sawyers from Gorakhpur or Nepal in the winter.

War conditions brought a demand for sawn timber of species other than *sal*: formerly there was only a market for sawn *sal*. Since 1940 the Government sawmill was taking the whole of the output of the Kurseong Forest Division. In consequence handsawing practically ceased and private mills only worked part-time on logs coming from Nepal and private forests. With the Assam Rail Link Project, however, timber sawing received a fresh and fierce lease of life, supported by the expansion of Siliguri town and other wayside railway stations.

Plywood was made during the war of 1939-45 in small private factories at Siliguri. After the war this particular industry received a greater fillip from the tea industry. During the war various small industries cropped up in Kurseong, Darjeeling and Kalimpong using timber and wood pulp.

Electric Power—Darjeeling district is remarkable for its abundant easily developable water power. Despite that fact and although it claims to have had the first hydro-electric undertaking in India (the original plant at Sidrapong was said to work on 10th November 1897) these resources have remained practically undeveloped. Many of the tea gardens have their private diesel plants. The hydro-electric undertakings are only 2: Kurseong, which has recently been taken over by the West Bengal Government; and Darjeeling Municipality. The details of the workings of these two undertakings and future development programmes are given below. Water power was rejected as a means of generating electric power at Kalimpong and oil driven generating machine was installed in 1938 by the Kalimpong Electric Supply Co., Ltd. (Managing Agents: Messrs. H. K. Banerjee & Sons).

During the last decade there was a big plan to harness the Tista and instal a large hydro-electric plant sufficient to electrify the North Bengal districts. The Partition of Bengal in August 1947 neatly disposed of this plan as unworkable. In recent years there have been proposals to harness the Jaldhaka and Samsing both for irrigation purposes and generation of hydro-electricity. This has made no progress.

Programme of Darjeeling Municipality—The Municipality of Darjeeling at present owns three Hydro Power Stations and one Diesel Station at Jebong. After the disaster owing to the landslides in 1950, the whole installation was thoroughly repaired and supply has commenced in full swing for the last one year.

The Municipality has been suffering from shortage of power for a considerable time and the position has lately worsened. Although endeavour was made to ease the supply position by augmenting the Diesel Station, the subsequent growth of load made further expansion of it prohibitively costly. The Municipality is, therefore, considering some new hydro-electric projects as a "Development Programme" to meet the present shortage of power and also to extend its supply to adjoining non-electrified areas.

Owing to the financial stringency of the Municipality, the implementation of any such scheme will require the help of the State Government either in the form of a grant or loan on a long-term repayment basis. The Municipality has, therefore, lately put forward to the Government two major hydro-electric schemes for necessary approval so that arrangement for a loan from the Government may be settled at an early date. The Electricity Development Directorate is studying in detail the financial and technical aspects of these schemes and will shortly suggest to the Municipality the best course for implementing the schemes by stages.

The present maximum demand during the driest period is about 1,300 KW and during the monsoon, 1,750 KW including a power demand of 450 KW for tea drying factories.

Two schemes have been put forward by the Municipality for scrutiny: these are the Chongtong Scheme and the Little Rungeet Scheme.

With the help of these two Schemes, the Municipality hopes that the shortage of power of the Municipality will be solved for the next 7 to 10 years.

Brief descriptions of the Schemes are given below:

The Chongtong Scheme—The Scheme envisages the use of the tail water discharge of the Singtom Power Station and to carry it by an open flume line, about 1½ miles long. The head available about 300 feet and the waterflow will be sufficient to generate about 250 KW in winter and 500 KW in monsoon. The total cost of the Scheme including the installation of another power station, machinery, reservoir, etc., will cost about Rs. 6,00,000. With the implementation of the scheme the Municipality hopes to save considerable sums of money over fuel oil by closing down the diesel generating station and keeping it as a standby. The whole output of this scheme will be utilised to meet the present shortage of power in the town proper and to maintain the declared voltage of the system.

The Little Rungeet Scheme—The Scheme is much bigger than the previous one and mainly intends to supply power to the hitherto non-electrified areas and also bulk supply to tea gardens and other neighbouring licensees. The Scheme proposes to tap the river Little Rungeet at a point about 4 miles off from the generating station site. The Power Station building of the Chongtong Scheme will be designed to house the machinery of this Scheme as well, thus saving the cost of building a separate power house. The available head for power generation will be about 600 feet.

The water resources of this Scheme will be sufficient to enable the Scheme to generate about 800 KW in winter and 2,000 KW during the monsoon.

With the completion of both Schemes which will cost about Rs. 18,00,000, the Municipality will be able to meet the load increase of the area for the next 7 to 10 years.

Transportation—Transportation employs a considerable number of individuals. It is difficult to estimate how many persons are employed as porters or in attendance on pack animals. Carting is a very important means of transport in the Tista Valley, the Terai and on the Darjeeling-Siliguri Cart Road and for forest extraction on forest roads. The number of carts

in use in the district was estimated in 1945 to be about 17,000 but only 700 were used for public transportation employing perhaps 500 persons and 1,000 animals. In the Terai most of the carters work independently but there are a few persons owning up to one dozen carts each who employ carters on monthly wages.

Railways in the district especially after the establishment of the Assam Rail Link Project employ at least 2,700 workers and white collar employees and there are the following repair and maintenance installations in the district qualifying as industrial establishments:

(1) The workshop of the Darjeeling-Himalayan Railway Company at Tindharia where locomotives (39 in use in 1945) and rolling stock are repaired and maintained and carriages and wagons designed and built. The machine shop is equipped with 17 lathes and drilling, planning, milling, shaping, slotting, grinding, shearing and punching machines. There is a carpenter's shop with the usual power driven equipment.

(2) At Siliguri and Darjeeling only running shed work is carried out in the Darjeeling-Himalayan Railway but the Assam Rail Link Project has a large loco shed.

There are two public Ropeways in the district which employ only a small number of persons. The motor transport industry does not employ any appreciable amount of labour even if garages and repair establishments are included.

A small engineering workshop with a foundry at Siliguri employs about 40 persons and repairs machinery and vehicles.

The building industry and road maintenance give casual employment to a certain number of persons mostly unskilled.

Important bridging has been undertaken in the district from time to time but the construction work can hardly be considered a local industry or manufacture, as materials and skilled personnel are usually entirely imported.

Mining—Coal occurs in the band of Gondwana rocks running from near Pankhabari to Dalingkot. The beds usually dip at high angles to the north-north-west and are much contorted and faulted.

The coal is badly crushed and is of a friable nature, probably only fit for cooking, making into briquettes or burning in brick kilns. An attempt to work coal on a commercial basis was made from 1896 to 1900 during which period 7,231 tons were raised before the attempt was abandoned.

The above extraction was made from exposures about 4 miles north of Bagrakot railway station where the Lish and Churanti rivers approach one another in the forest just south of Khas Mahal

land. In 1943 prospecting was undertaken in the same neighbourhood where seams of some thickness are exposed. In 1944 coal was extracted and sold locally; the result has induced the prospector to attempt more permanent operations. The Bagrakot coal mine is still worked. A labour force of not more than 50 persons was then employed on extraction of this coal.

No other mining or quarrying takes place in the district on any appreciable scale but the Baikantapur Estate normally realises about Rs. 10,000 per annum royalty for the removal of sand and stone from the bed of the river Mahanadi near Siliguri town. The Khas Mahal realises about Rs. 4,300 for sand and stone from other rivers at a rate of Rs. 2 per 100 cubic feet. This rate was increased during the war to Rs. 4. The royalties increased enormously during the construction of the Assam Rail Link Project.

Although graphite of an inferior quality occurs in the semi-graphitic schists of the Rakti river it has not been extracted in economic quantities. Iron ore is found at Lohagarh to the south-west of the district between Pankhabari and, according to old reports, was formerly worked. High grade magnetite and micaceous hematite, free from sulphur and phosphorous, form a band about 20 feet thick at Samalbong about a mile east south-east of Sikbar to the east of the Tista. The ore is said to have produced iron of the first quality in the past.

Copper ores, chiefly chalcopyrite, occur in the rocks and the daling series near Ranihat, on the western side of Mahanadi near the mouth of the Baffupani; at Peshok; at a place 2 miles north-east of Kalimpong; on the left bank of the Tista river east of Mangpu; in a ravine near Samthar; and in the neighbourhood of the Chel river. No attempt has yet been made to exploit the deposits by modern methods. Concessions were made out in the past but working was unsuccessful.

Cottage industries—In making a survey of cottage industries, the Kalimpong Industrial School deserves prominent mention. The origin of this school dates back to 1897 when Mrs. Graham, wife of the very Rev. J. A. Graham, started teaching local hill-women lace-making to supplement their income from agriculture. Later carpentry, embroidery, tailoring and carpet-making were added to the school curriculum until now there are two separate departments including weaving, dyeing, leathercraft, knitting, painting, fabric-printing and building. In 1924 the school was registered under the Companies Act as the Kalimpong Mission Industries Association and capital to the extent of Rs. 75,000 was raised. Large numbers of the carpenters and *durzies* working in the Darjeeling district and Western Duars have passed through this Industrial School and generation after generation of hillmen and women have now been engaged upon the same craft so

that specialised skill is becoming hereditary. Many residential buildings (including furniture and furnishings) in Kalimpong stand as example of the craftsmanship taught in the school. Agents in the principal centres of India distribute other goods made in the course of training students, on the sale of which (assisted by a small Government grant) the school exists and thrives. The chief agents are the Kalimpong Arts and Crafts, Ltd., and in Calcutta the Good Companions.

The principal products of cottage industry in the district are blankets, woollen knitted articles, woven cotton and wool fabrics, kukris, various tools, pottery, bamboo products (baskets, mats, ghooms, etc.) and ropes.

The manufacture of blankets and knitted goods has continued for a long time as a cottage industry. Both Tibetan wool and imported yarns are used. Cotton weaving on handlooms is very limited but weavers in the Terai make coarse fabrics for local consumption. In the hills, about 50 families (100 persons) are engaged in the production of Bhutia *chadars*.

In normal times kukris (Nepali knives) in small quantities are made at Ghum. About 15 families are employed. Second hand steel is used and it takes two persons about a day and a half to manufacture a complete kukri. Methods of manufacture are very primitive and the annual output is about 2,700 kukris valued at Rs. 7,000.

Corrugated iron for walls and roofing is common. Fifty per cent. of the houses had wooden floors and 38 per cent. earth floors, both being preferred to stone or cement as more comfortable to sleep on. Plinths are low and rooms small, low, badly lit and badly ventilated. The average dimensions of a room or hut was found to be 12 feet in length, 11 feet in breadth and 6 feet in height.

Overcrowding is serious and the average number of persons occupying a room was 3.5. Nine persons were found to be occupying one room 12' x 12' x 8'. Usually huts have only one room which is used both for living and cooking.

Rents in Darjeeling were 50 per cent. higher than in Kurseong and since 1939 they had increased 33 per cent.; Kurseong showing a higher rate of increase.

The following kinds of factories with the numbers noted against each were registered by the Chief Inspector of Factories, West Bengal, in 1951-2:

Jute Press—			
Siliguri	...	...	1
Dairy Products—			
Ghoom	...	...	1

Rice Mills—		
Siliguri	...	5
Matigara	...	1
Naxalbari	...	1
Hatighisa	...	1
Tea Gardens—		
Kurseong	...	11
Lebong	...	5
Rangli Rangliot	...	4
Sonada	...	7
Darjeeling	...	14
Marybong	...	5
Bagdogra	...	4
Nagri Spur	...	6
Mirik	...	5
Mahanadi	...	5
Ghoom	...	5
Tindharia	...	3
Punkhabari	...	1
Gaya Ganga	...	5
Panighata	...	8
Sukna	...	4
Matigara	...	3
Simulbari	...	3
Tung	...	5
Fagu	...	3
Gayabari	...	1
New Chamta	...	1
Naxalbari	...	6
Kharibari	...	2
Hatighisa	...	4
Lopchu	...	1
Siliguri	...	2
Tista Bridge	...	1
Kalimpong	...	1
Matelli	...	1
Oil Mill and Sawmill—		
Siliguri	...	1
Sawmill—		
Siliguri	...	2
Manufacture of Plywood—		
Siliguri	...	3
Wooden furniture—		
Kalimpong	...	1
Darjeeling	...	1
Matches—		
Siliguri	...	1
Letter Press, Lithographic Printing and Book-binding—		
Kurseong	...	1
Fine & Pharmaceutical Chemicals—		
Mangpu	...	1
Agricultural Implements—		
Siliguri	...	1
Railway Workshop—		
Tindharia	...	1
Repair of Motor Vehicles—		
Darjeeling	...	1
Siliguri	...	2

Electric Light and Power—		
Darjeeling	...	1
Tung	...	1
Bijanbari	...	1
Petroleum Depot—		
Siliguri	...	1

Trade—In studying the trade of the district it will be found convenient first to consider the trade moving to and from the plains; then the trade moving over the frontiers of Bhutan, Sikkim and Nepal and finally local trade within the district.

(1) *Trade with the plains*—The road system of the district as well as the Darjeeling-Himalayan railway system both converge on Siliguri and practically the whole of the import and export trade from the plains passes through the Eastern Railway at Siliguri.

Little trade comes down the valleys east of the Tista into the plains but tea gardens at the foot of the hills in the Kalimpong subdivision are now able to export tea and import stores, coal, etc., via Siliguri by the Bagrakot-Sivok-Siliguri Road and this outlet is used by a wider area of tea gardens in the Jalpaiguri district. All the trade through the Tista Valley with Sikkim and Tibet and with Kalimpong passes through Siliguri. Much of this is road traffic (carting) and no doubt, with improvement of the Tista Valley road and widening and strengthening of bridges the bulk of the traffic formerly carried by the railway and carts is now carried by lorries. The main commodities passing down the Tista Valley trade route are wool, oranges and cardamoms.

The Hill Cart Road from Darjeeling and the main line of the Darjeeling-Himalayan Railway carry the greater part of the produce of the Sadar and Kurseong subdivisions, the supplies needed for the towns of Darjeeling and Kurseong and for the tea gardens and industries of these subdivisions as well as the traffic from Nepal crossing the frontier at Simana Basti and northward (potatoes and *chirata*). The Eastern Railway and the Terai road system serve the Terai tea gardens via Siliguri and there is a certain amount of traffic with Nepal through Naxalbari Station some of which passes through Siliguri.

The traffic booked to and from the Siliguri Station of the North Eastern Railway reaching or leaving the district was in the year ending March 1942, as follows:

81,505 tons to and 37,946 tons from the Siliguri Station. The main commodities of trade are: paddy, rice, gram and pulses, wheat flour, wheat, oil seeds, other grains, salt, gur, molasses, sugar, wood unwrought, cotton raw, cotton processed, fodder, fruit, vegetables, oranges, jute raw, jute processed, iron and steel, manures, oilcake, kerosene, petrol, oil fuel, vegetable oils, tobacco,

provisions, potatoes, coal, tea, cardamoms, wool, revenue stores, miscellaneous, cement, marble stone.

(2) *Transfrontier trade—BHUTAN*: The Bhutan frontier marches with the Kalimpong subdivision but very little trade crosses it or proceeds down the Jaldhaka valley to the plains. Only 2 or 3 per cent. of Kalimpong's transfrontier trade is with Bhutan. Imports from Bhutan to Kalimpong are small quantities of wax, musk, bristles and lac. The smallness of the trade is due to the physical obstacles: more traversable trade routes exist further east between Bhutan and Assam.

TIBET: Trade from Tibet to the plains of India *via* Darjeeling district follows two routes both of which pass through Sikkim State. One route leaves Tibet for Sikkim *via* the Jalap La, enters the district north of Pedong and passes through Kalimpong. The other route enters Sikkim by the Nathu La and passes through Gangtok, the capital of Sikkim. Up to Kalimpong and Gangtok goods are carried on pack mules. From Gangtok the traffic is moved by bullock cart down the Tista Valley crossing the frontier of the district and Rangpo. Wool coming down from Gangtok is carted to Kalimpong where it is processed and baled before onward despatch to the plains. Other commodities being moved to and from Tibet *via* Gangtok pass along the Tista Valley by road or rail to Siliguri. These two routes compete and the Gangtok route has obtained some advantage over that through Kalimpong by reason of improvements in the Gangtok-Nathu La bridge road and in the cart road from Gangtok along the Tista Valley (Lachen Road). The differential costs between pack transport and carting have favoured the Gangtok route which is 20 miles shorter for pack transport. The Nathu La route is in some respects less severe on mules and muleteers. If there be further improvement in the Gangtok-Siliguri Road so that road transport can be worked at still lower rates the advantages of the Gangtok route can be expected to increase. During the war a shortage of mules also operated in its favour.

Wool, furs, musk and Yak's tail, bristles, gold dust and silver used to be the main imports from Tibet. The normal import of wool used to be over one hundred thousand maunds of wool. The main buyer used to be America and practically none of the wool was consumed locally. Since the Chinese occupation of Tibet in 1951 the wool trade has suffered. At one time, towards the end of 1951, the import of wool totally stopped but later the restriction was relaxed to a small extent. Next in value to wool as an import from Tibet is musk which mainly comes from the Tibetan province of Kham. The trade in furs was quite large and the markets were mainly America and England. The market for Yak's tail is mainly Madras. Ponies and mules are imported in quantities.

In normal times exports to Tibet from India through Kalimpong were of the following commodities: Woollen and cotton piecegoods; iron; steel; copper and brass ware and sheets; stationery; foodgrains; sugar and gur; dried fruits; almonds and pistachios; dyes and chemicals; kerosene; candles; lanterns; electric torches and batteries; bricktea; aluminium ware; porcelain ware; pearls; coral beads; precious stones; cement; leather goods; cigarettes; leaf tobacco and pharmaceutical goods.

SIKKIM: The commodities imported from Sikkim through the Kalimpong subdivision and the Tista Valley are chiefly oranges, apples and cardamoms. Vegetables, sheep and goats, flowers and flower bulbs, orchids and a small quantity of musk are also imported. Two-thirds of the Darjeeling oranges on the Calcutta market come from Sikkim and the greater part of the oranges from Sikkim pass through Tista Valley. A great deal of Sikkim apples pass off for Kulu apples. Carts, coolies and pack ponies are used to get the crop to the Guelle Khola, Riyang or Kalimpong Ropeway station. In 1943-4 the Sikkim Darbar, controlling all the oranges produced in the State, exported Sikkim oranges required for the army to the value of Rs. 10 lakhs and for civilian consumption to the value of Rs. 5 lakhs. Sikkim cardamoms are generally of better quality than those of the Darjeeling district and Sikkim output passing through the Kalimpong subdivision is estimated to be 25,000 maunds annually.

The Sikkim bazars at Rangpo, Rhenok, Rangli, Namchi and Soreen used to get their supplies from Kalimpong.

Trade with Sikkim across the frontier where the Sadar subdivision meets Sikkim is not important. This trade passes through two bazars:

- (1) Bijanbari-Pulbazar through which goods reach Sikkim *via* Namchi;
- (2) Singla, proceeding to Sikkim *via* Nayanbazar.

Bijanbari-Pulbazar serves also the transfrontier trade with Nepal and handles exports of rice, mustard oil, cloth, salt, pulses, kerosene, copper and brass sheets, cotton yarn, bar iron, wheat products and sugar; and imports of potatoes, cardamoms, honey, chirata, majinth, ghee and butter, vegetables, poultry and eggs, slaughter animals, maize, millet, bristles and black dal. Annual value of exports has been estimated at Rs. 315,000 in 1945.

The trade passing through the Singla Bazar was mainly transfrontier with Sikkim, local trade being small. Exports were rice, mustard oil, cloth, salt, pulses, kerosene oil, copper and brass sheets, cotton yarn, bar iron, wheat products and sugar of a total annual value of Rs. 75,000 in 1945.

Imports from Sikkim are fruit, potatoes, cardamoms, chirata, ghee, maize, millet and black dal. This bazar has lost its former importance in recent times as most of its trade has moved over to Nayanbazar in Sikkim.

NEPAL: The main trade routes with Nepal are:

- (1) *Via* Srikhola, Lodhama, Rimbick to Bijanbari and Pulbazar. Transportation up to Bijanbari is by porter and thence to Darjeeling by ropeway or *via* Pulbazar by bridle path. Although Bijanbari and Pulbazar are at the 2,000 feet level the pass over which this trade reaches them is over 10,000 feet.
- (2) *Via* Gorakhia and Pashpatinagar in Nepal to Sukhiapokri, Simana, Manibhanjan or Mirik in the Darjeeling district. Sukhiapokri and Simana are connected with Ghum and Darjeeling by a metalled road which can only be used as a bridle path for goods. This group of bazars is situated at fairly high altitudes (5,000 to 7,000 feet) and access is over passes about this altitude.
- (3) In the Terai *via* Sanicharia in Nepal to Naxalbari, *via* Bhadrapur in Nepal to Adhikari and *via* Galgalia (just outside the district in Bihar). Galgalia is served by rail and Naxalbari both by road and rail.

The nature and volume of the trade through Bijanbari and Pulbazar have been outlined above. The commodities passing through the Sukhiapokri group of bazars are similar in description and exports through them amount to Rs. 700,000 annually (1945). The annual import of potatoes (65,000 maunds) is also higher than that estimated (30,000 maunds) for the potato import on the Bijanbari route.

The Terai routes through Naxalbari and Adhikari do not carry any exports of rice or mustard oil. The main export commodities are cotton cloth, salt, copper and brass sheets, cotton yarn, bar iron, kerosene oil and sugar. Annual imports are about 100,000 maunds of rice (3,663 tons), mustard oil and small quantities of maize and potatoes.

Trade through Galgalia is practically all import from Nepal of rice and paddy which is railed to Siliguri and other stations on the main Darjeeling-Himalayan Railway. Milling takes place both at Galgalia and Siliguri.

The movement of rice and paddy in and out of Nepal is partly due to the superiority of the transportation system of Darjeeling over that in Nepal.

Exports of Darjeeling produce—Tea is the main commodity produced in the district. The orange trade is next in importance. Apart from transit

traffic of oranges grown in Sikkim, there is a considerable export of oranges grown in the Darjeeling district. A survey conducted in 1938 showed that 1,070 acres in the Kalimpong subdivision and 230 acres in the Sadar subdivision were under oranges. The orange season lasts for 3 or 4 months from the middle of November and yield varies from year to year: hail in the flowering season can destroy the whole of the year's crop. Orchards are practically all owned by hillmen and most of the crop is sold on the trees in September to upcountry Muslim fruiterers from Chitpur Road and College Street in Calcutta, who do not depend on local finance. They employ hillmen to pick the fruit. The balance of the crop is sold when ripe in the open market at Kalimpong, Tista, Sombaria, Matelli and Matigara bazars. It is estimated that well over 50,000 maunds of oranges go down the Tista Valley in a good year (including the Sikkim crop) and perhaps less in a bad year. Oranges are bought wholesale in counts of 1,000 and packed in boxes of a standard size holding about 350 to 400.

Cardamoms are also an important export crop. From the Kalimpong subdivision alone the annual value of the crop is estimated at 4 or 5 lakhs of rupees (1945) and the district output is probably double this. The entire crop is grown for export mainly to the Punjab. The average annual output from the Kalimpong subdivision is 10,000 maunds. The financing of the purchase and despatch of the crop is entirely in the hands of the Marwaris and it was the cardamom trade that first attracted Marwaris to Kalimpong soon after its annexation from Bhutan. The crop is purchased in advance from the cultivator. Imports of cardamoms take place from Sikkim and Nepal through the Tista Valley, the Sadar subdivision and Kurseong (Bijanbari, Pulbazar, Singla and the Nepal frontier bazars). In the Kalimpong subdivision the principal markets for cardamoms are Kalimpong, Alagarh, Gitbeong, Tista and Sombaria.

The district produces a considerable quantity of vegetables for export to Calcutta from April to November. Output during the war has been increased by the opening of special farms for supply to the forces. It is difficult to estimate the normal export of vegetables but this might be 50,000 maunds annually. In addition there is an important export of seed potatoes estimated at from 80,000 to 100,000 maunds annually. Many of these are imported from Nepal and they are despatched to districts in West Bengal (Sheoraphuli is a principal centre), Bhagalpur, South Bihar districts and Orissa. There is also an export trade in chirata, honey and majinth practically all of which is first imported from Nepal. Before the war much timber was extracted from the forests of the district and exported. Private contractors were engaged in this business but during the war exploitation greatly increased and the output was handled solely by departmental agency.

To sum up, the main exports of the district are tea, fruit and vegetables, seed potatoes, cardamoms, chirata, majinth, raw hides, skins and timber. Imports are rice, wheat products, sugar, petrol and kerosene, gur and molasses, provisions, electrical goods, building materials, paper, agricultural implements (*kodalis* and sickles), aluminium ware, wrought and bar iron, woollen goods, cotton cloth, yarn and piecegoods, coal, matches, mustard and other vegetable oils, mustard seeds, leather goods, shoes, brass and copper ware and sheets, salt, fodder, chemicals (soda ash and manure), poultry, eggs, slaughter animals, soap, pottery, umbrellas, hurricane lanterns and motor cars and parts.

(3) *Local Trade*—Local trade is considerable in a number of bazars in the district many of which are controlled by the Darjeeling Improvement Fund. The more important bazars in the district will be found in the statistical section of this volume. Those marked A had a turnover of over 20 lakhs of rupees annually; B a turnover of between 15 and 20 lakhs; C between 4 and 15 lakhs and D less than 4 lakhs, in 1945.

SADAR SUBDIVISION

Darjeeling ..	A	Rangli Rangliot ..	D
Sukhiapokri ..	B	Sonada ..	D
Ghum-Jorebunga-low	C	Ranbul ..	D
Pulbazar and Bijanbari ..	C	Lodhama ..	D
Simana ..	D	Rimbick ..	D
Manibhanjan ..	D	Singla ..	D
Pokhriabong ..	D	Ging ..	D
Lopchu ..	D	Pattibash ..	D
Takdah ..	D	Lebong and Bhutia ..	D
		Basti	

KURSEONG SUBDIVISION

Kurseong ..	B	Gayabari ..	D
Mirik ..	C	Mahanadi ..	D
Toong ..	D	Soureni ..	D

Tindharia .. D

KALIMPONG SUBDIVISION

Kalimpong ..	A	Algarah ..	D
Tista Bridge ..	C	Labha ..	D
Sombaria ..	C	Gitbeong ..	D
Pedong ..	D	Rambi ..	D

SILIGURI SUBDIVISION

Siliguri ..	A	Bagdogra ..	C
Naxalbari ..	C	Kharibari ..	D
Matigara ..	C	Panighata ..	D

Sivok .. D

Various small business such as contracting for road repairs and for extraction of timber from forests, purchase and running of motor cars, and lorries for hire and charcoal burning are partly trading and partly industry. Hillmen are quite efficient in carrying out these operations but they rarely can undertake them without borrowing capital.

The finance of trade and agriculture in the district is mainly in the hands of those who control trading, i.e., Marwaris and to a much smaller extent Biharis. There are in addition a few up-countrymen engaged in the seed potato, the orange and the chirata and majinth trades who take a share in financing them. Certain special trades mentioned earlier are, as stated, controlled and financed by those who are not Marwaris or Biharis. The tea industry is financed and controlled from Calcutta but the local movement of funds required for the working of the industry is handled by the various commercial banks as well as by tea garden kayahs whose main ostensible function is the retail supply of commodities. The commercial banks include the Imperial Bank of India, Lloyds Bank, Ltd., the Central Bank of India. Although they have branches in many trade centres, these banks are more concerned with the movement of funds in a general way than with the detailed financing of trade and agriculture. Some, however, lend money on stocks of commodities in godowns. Large Marwari private banking firms, registered under the Money-Lenders Act are more closely concerned with actual trade financing and indeed often engage directly in trading.

While commodity markets and trade generally are financed by Marwari, Bengali and Bihari bankers, branches of the Imperial Bank of India and Lloyds Bank provide general banking facilities in Darjeeling. The Imperial Bank opened its Darjeeling branch in September 1922, which, in addition to conducting Government business and providing funds for tea gardens in the district, also supplies general banking facilities for residents of the district and for visitors. A branch of Lloyds Bank was opened in 1935 which also provides funds for tea gardens and general banking facilities.

MEANS OF COMMUNICATION

The pioneers who came to open up Darjeeling after it had been ceded in 1835 were confronted with an arduous journey from Calcutta before they reached the hills. A *guide to Darjeeling* published in 1838 mentioned 98 hours as the time the journey took from Calcutta by *dawk* as follows:

54 hours Calcutta to Malda.

16 hours Malda to Dinajpur.

20 hours Dinajpur to Titaliya.

8 hours Titaliya to the foot of the hills.

The whole journey to Darjeeling lasted five or six days and the discomfort and expense were graphically described by Sir Joseph Hooker who in 1848 at a cost of Rs. 240 had occasion to perform the journey from Karagola Ghat on the Ganges to the foot hills.

The first measure taken to improve communications was the deputation of Lieutenant Napier

(subsequently Lord Napier of Magdala) to construct a road from Siliguri to Darjeeling. This was carried out from 1839 to 1842 and the road, now known as the Old Military Road, can still be seen winding its way by sharp ascents from Pankhabari to Kurseong and thence on to Dow Hill and Ghum. The section of this road from Pankhabari to Kurseong is part of what is now known as the Matigara-Kurseong Road.

This road was not practicable for wheeled traffic and the development of Darjeeling and the cost of transporting military stores (Rs. 2 per maund from Pankhabari to Darjeeling was very heavy for those times) led to the construction of a cart road to Darjeeling. Work began in 1860: the section from Kurseong to Darjeeling was opened to traffic in 1864 and the whole road completed in 1869. The specification was a road 24 feet in breadth with a general gradient of 3 in 100 and maximum gradient of 1 in 18. Meanwhile, communications in the plains had been improved by the construction, at a cost of Rs. 1,468,000, of a road 126 miles long from Karagola Ghat on the Ganges opposite Sahebganj to Siliguri whence a road had been driven connecting with the Hill Cart Road. The road from Karagola to Siliguri is now known as the Ganges-Darjeeling Road.

In 1860 the East Indian Railway had been extended up to Sahebganj and thereafter it was only necessary to travel by road north of this point in order to get to Darjeeling. The journey to the foot of the hills could be performed from Karagola either by *palki* (palanquin) or bullock cart and by *tonga* from Siliguri to Darjeeling. This route from Karagola passed through Purnea, Kissanganj and Titaliya to Siliguri. In 1878 the Northern Bengal State Railway was opened for traffic up to Jalpaiguri and by the end of that year it had been extended to Siliguri. In 1881 the Darjeeling-Himalayan Railway Company had opened its steam tramway for traffic up to Darjeeling. Up to 1915, the rail journey to Siliguri was broken at the Ganges where the broad gauge line ended and the river crossing was performed in a ferry steamer to the metre gauge system gradually extended northward.

The best railway communication with Calcutta prevailed between 1927 and 1947 when the traveller could reach Siliguri from Calcutta with a night journey only of about 9 hours and be in Darjeeling within 13 or 14 hours of leaving Calcutta. In August 1947 the Partition of Bengal severed this railway communication and necessitated the building of the Assam Rail Link Project. This was completed in double quick time and started functioning in 1949-50.

The road system in the district is not only of local utility but also of importance to the State and to Sikkim and Tibet. These facts explain the number of authorities controlling the roads of the district. The Central Public Works Department

controls part of certain major roads leading to Sikkim and Tibet. Other parts of these roads and the other more important roads in the district are directly maintained by the Works and Buildings Department of the State Government which is interested in the main lines of communications with the neighbouring States of Bihar and Assam and in an adequate road system for the summer seat of the State's Governor. The District Board is responsible for subsidiary lines of road communication and in addition there are roads of varying importance to the public maintained by the Forest Department and the villagers of Government Estates in the district.

In the hills, blasting may be necessary in construction and repairs and streams crossing road alignments often have to be treated with expensive revetting or walling to lessen risk of their harming the road. Roads are usually built with an inward slope and a drain along the hillside to lessen the risk from heavy rain. Bridging technique has changed considerably since the time of Hooker when suspension bridges consisted of a few bamboos slung from two parallel canes. Such bridges exist today but the more common suspension bridges use steel wire ropes and no bamboos. The log bridge built on the cantilever principle is also still made but steel girders and reinforced concrete are used for the more important modern bridges where traffic is heavy and durable structures are needed.

The Central Public Works Department maintains the Tista Bridge to Rangpo Road, a length of 15 miles. The Government of West Bengal maintains the following important roads: The Darjeeling Hill Cart Road; the Matigara-Kissanganj-Dow Hill-Jalapahar Old Military Road; the Tista Valley Road; the Rishi Road beyond Kalimpong; the Sivok-Bagrakot Road; the Siliguri-Naxalbari Road; the Tirana-Naxalbari Road; the Tirana-Bagdogra Road; the Ghum-Simana Road; the Peshock Road; the Rangit Road and the Simana Basti-Dudhiajore Road. In addition to metal roads suitable for wheeled traffic the West Bengal Government also maintains bridle paths of which the most important are the Tonglu-Sandakphu-Phalut Road and the Jangi Guard Road from Kalimpong to Garubathan which connects Kalimpong with the Duars. The District Board, the Forest Department and the Darjeeling Improvement Fund maintain a large network of roads within the district, the chief of which is the Simana-Mirik-Ghyabari-Panighata-Pankhabari Road.

There are two Ropeways—the Kalimpong Ropeway Company, Limited, which was formed in 1928 (which connects Kalimpong to Rilli near Riyang) and the Darjeeling-Bijanbari Ropeway started in 1939. There are several private Ropeways belonging to tea gardens and plantations.

The most important airstrip of Northern Bengal lies within the district at Bagdogra. This landing strip has now been made concrete and permanent and is a scheduled passenger and freight service station authorised by the Director General of Civil Aviation. Bagdogra now takes the bulk of upper class passenger traffic between Calcutta and Darjeeling districts. The fare compares favourably with the Railway. The sole passenger line is run by the Government Airline.

The North Bengal National Highway will run along the old Purnea-Kissenganj-Galgolia-Naxalbari-Siliguri Road. The State Highway between Siliguri and Jalpaiguri has been improved to a first class road.

An idea of the increase of the public motor stage coach traffic may be obtained from the fact that between 1947 and 1951 the number of licenses of stage coaches has increased by 28. Two important routes have been thrown open to public stage coaches during this period: the Kalimpong-Kumai route of 72 miles and Kalimpong-Garubathan route of 55 miles.

EDUCATION

History—The pioneers in the spread of education in the District were Christian missionaries and particularly those of the Church of Scotland Mission. When the British took over the district, popular education was practically unknown. A few of the better classes had private tutors for their boys: a few who could read tried to hand on this accomplishment to their families: and in Buddhist monasteries novitiate monks were taught to chant Tibetan texts. But of real general education there was none and no schools worthy of the name were in existence.

The first attempt to reach the hill people by education was made about 1850 by the Rev. W. Start, a private missionary, who added to his record of good work in Darjeeling by opening a school for Lepchas. After him came a band of German missionaries, one for whom, a Mr. Niebel, devoted himself to school work, prepared some Lepcha primers and gathered boys together into schools. It was not however until the advent of the Rev. William MacFarlane in 1869 that any board scheme of vernacular education was introduced into the District. He realised that it would be essential to train teachers and with this object he collected a band of hill boys, to teach whom he devoted the first years of his missionary life in the hills. This group of boys was the nucleus of a training school at Kalimpong. Mr. MacFarlane found he could use Hindi text-books as a means of instruction and induced Government to give scholarships for students attending his courses of instruction. He himself taught in the face of many discouragements and the frequent disappearance of his most promising pupils. But he persevered and, overcoming all

obstacles, was able, with the help of Government, to start primary schools in many parts of the district.

Primary Education—In 1873 there were 25 primary schools with 650 boys and girls receiving instruction. Under his successors in the Church of Scotland Mission, progress was steady. Others interested in the spread of education were not slow to follow the lead given but the Scots Mission had been the most important influence in the spread of education in the district.

By 1907 there had been expansion to 70 primary schools with a roll strength of 2,420 boys and 300 girls, average attendance being 1,880. The corresponding figures for 1944 were:

Number of schools	Roll strength		Average attendance
	Boys	Girls	
299 (for boys)	10,166	1,424	8,645
19 (for girls)	215	1,167	954

In 1944 one hundred and twenty of these schools were run by the Scots Mission, 10 by the Roman Catholic Mission, 3 by the Ramkrishna Vedanta Asram and 4 by the Buddhist Mission (Young Men's Buddhist Mission). Darjeeling Municipality had under its direct management two Biss' Scheme Free Primary Schools—one for boys and the other for girls.

An account of the High Schools and Primary Schools of the district will be found in the statistical section of this volume. It is unnecessary to paraphrase the statistics here.

No District School Board has yet been constituted in the district. Consequently free and compulsory primary education in the rural areas of the district, which legitimately is the function of a District School Board, has not yet been introduced. The Darjeeling municipality moved the Government asking to be authorised to impose education cess in order to introduce free primary education within the municipal limits. Sanction has been given to the municipality and it started collecting education cess. It is expected that free primary education will be introduced in the Darjeeling district very shortly.

In the absence of a District School Board no Junior Basic School can be started in the district.

The year 1951-2 saw the transfer of control of Secondary Schools from the University of Calcutta to the West Bengal Board of Secondary Education. This led to certain administrative changes as well as departures in policy.

The demand of education of girls specially for higher secondary education has been steadily mounting in recent years. This is one of the most important signs of the time.

In March 1953 there were 17 High Schools, 28 Middle Schools, 330 primary schools, and 3

schools for professional education. In the previous year there were 3 High Schools, and 4 Primary Schools less. There are 6 High Schools, 4 middle Schools, 18 Primary Schools and 1 Professional Education School, all exclusively for girls. There are 27 Schools for Special Education consisting of 2 Sanskrit *Tols*, 22 Adult Training Centres, 1 Junior Madrasah, 1 School for the blind, and 1 Monastic School. In all there were 407 institutions for boys and 28 institutions for girls in March 1953. There has been a steady increase in the number of scholars in secondary and primary schools. In 1952-3 the number of scholars receiving school education was 27,726 boys and 11,421 girls.

In the High Schools the total number of boys was 6,825, of which 2,746 were from rural areas. Out of 4,251 students reading in Middle Schools for boys 2,211 were from rural areas, 2,786 girls read in High Schools and 1,629 girls read in Middle Schools. In the High Schools for boys there were 234 teachers of whom 97 were graduates and 43 had Diplomas in Teaching. In the Middle School for boys there were 188 male teachers and 13 female teachers. 13 male teachers were graduates of whom 4 were trained. There were 8 men and 93 women teachers in Girls' High Schools. 30 women teachers and 6 men teachers among them were graduates and of them 11 are trained.

There are two Primary Training Schools at Kalimpong: one for boys and the other for girls. Both the institutions are under the management of the Scots Mission. The Government Basic Training School at Kalimpong has 34 trainees.

There are two Industrial Schools: one managed by the State Government at Tung and the other by the Roman Catholic Mission at Kurseong. The latter school is aided by the Government. The Industrial School at Tung takes 19 pupils while that at Kurseong has 210 pupils. The Industrial School at Kurseong teaches carpet weaving, leather work, dyeing, tailoring, printing, book-binding, shoe making, and commercial art and tracing. In the Training School at Tung smithy, motor repairing and other shop works are taught.

Mention has already been made in a previous section of the Kalimpong Arts and Crafts where weaving, tailoring, carpet making, leather works, dyeing, commercial art, tracing, etc., are taught.

Apart from the 22 State-managed Literacy Centres the Government has made a special provision for the improvement of Backward classes and Scheduled Castes and Tribes. There are 2 High Schools and 2 Middle Schools in the Sili-guri subdivision meant primarily for Scheduled Caste students. The Government has been spending fairly large sums on the education of Scheduled Tribes.

Grants are made for physical activities and the advancement of physical education. The Boy Scout and Girl Guide Movement and the National Cadet Corps are active. Recently the Youth Camp Movement has become popular and in 1952-3 two Youth Camps at Kharibari and Pedong were organised. The Government has taken a commendable step in arranging youth hostels in places like Bagora and the high altitude points like Tonglu, Sandakphu and Phalut to encourage hiking and mountaineering.

Recently a BCG unit of the World Health Organisation has made an extensive survey of the health of school children in the district.

Darjeeling has a speciality in what is called European education. The following account of the so called European schools in the district is reproduced from the *District Gazetteer* of 1947.

European Education—Darjeeling owes its original development to its suitability as a health resort for Government servants. It is not therefore surprising that schools were needed there for the children of those European Government servants who used it as a sanitarium and who could not afford to send their children to be educated in their native land. Schools were attracted to the district or were opened in it to meet these needs. At first the schools which were started were on a small scale and had a precarious existence. They gradually gained stability. Their aim was to provide for European and Anglo-Indian children that type of education and upbringing to which the parents had been accustomed in their native country. Though the schools were designed and maintained for European and Anglo-Indian children, the type of education they provided has proved attractive to a number of Indian parents who could afford the fees and practically all the so-called European schools now accept children of Indian parents up to 15 to 25 per cent. of the total number of their pupils.

The earliest of the European schools in the district was the Loreto Convent for girls founded in 1846 and managed by the Loreto nuns who have their mother house in Rathfarnham, Dublin. The original building was at Snowy View where teaching continued until a more spacious building on the present site could be completed. That building was replaced in 1892 by the main building now in use. A concert hall was later added and in 1925 a class room building, a hospital and a large skating rink were constructed. There is now a separate building for the staff and Higher School Certificate pupils.

Though most of the teaching is given by the Sisters of the Institute, they are aided by secular teachers and matrons most of whom are resident. The courses of study are those laid down by the Code of Education for European Schools and include preparation for the Cambridge Junior

School and Higher School Certificate Examinations, for the Trinity College of Music and Royal Drawing Society art examinations and for elocution examinations. Religious instruction is given to Catholic pupils in Catholic doctrine and to non-Catholic students in moral philosophy. Lessons are also given to those whose parents so desire, in piano, violin and cello playing, in art, dancing and physical culture and in needlework, domestic science, shorthand and typing. The school has several playing fields, an excellent library and is well equipped with modern apparatus. In normal times, pupils number about 250 of whom 160 are boarders. Numbers increased considerably in war time.

St. Paul's School for boys was opened in Darjeeling in 1864 with 30 pupils on the rolls. Part of the funds used to finance the opening was derived from the sale-proceeds of a St. Paul's School which had been located in a building in Chowringhee, Calcutta, from 1848. For a time this school had flourished but as it was unendowed and failed to meet competition, it had to be closed and the building sold. The St. Paul's School of Calcutta had its origin in earlier schools there, one replacing another as various difficulties arose. Such schools were the Parental Academic Institution founded in 1823 and a High School for Europeans in Calcutta established by Archdeacon Corrie in 1830.

When it opened in Darjeeling in 1864 the school had one building. Numbers gradually increased until 1895 but from that date the prosperity of the school declined until, in 1907, the average number of pupils was a little over 100. Later recovery took place and since 1936 the school has been full. In 1944 there were 257 pupils on the rolls, all of whom were boarders. Boys of all races are admitted on equal terms but in order to preserve the European tone of the school Indian entrants do not normally exceed 25 per cent. of the total roll strength. In 1944, the School had a teaching staff of 13 masters and 5 mistresses, about half of whom held degrees of English Universities and the remainder degrees of Indian Universities. There is an experienced steward, an English trained hospital sister and four house matrons. The school prepares boys for the Cambridge Junior and the School Certificate Examinations and boys in the top form are prepared for the Intermediate Arts and Science Examinations of Calcutta University. Every attempt is made to give as wide an education as possible by encouraging out of school activities. There is a debating society, a carpenter's shop and excellent arrangements for organised games, the playing grounds and tennis courts being some of the best in Darjeeling.

The school occupies a magnificent site about 500 feet above Darjeeling with an unrivalled view of snow mountains. There are four blocks of buildings enclosing a dignified quadrangle

which contains dormitories, class rooms and Physics and Chemistry laboratories. The Chapel stands apart from the main buildings and below them. It was dedicated in 1935. Excellently designed in the modern style and sited prominently on a ridge, it is one of the features of Darjeeling, visible from almost every part of the town.

St. Joseph's College, North Point, Darjeeling, is conducted by the Jesuit Fathers under whom the Rector of the College is in charge. It was founded in 1888 when Father Henry Depelchin was placed in charge of the small school of St. Joseph at Sunny Bank. In order to provide for expansion, Government gave an excellent plot of ground on the crest of the spur running north from Birch Hill and in 1891 the school was removed to the new site after a building had been erected on it. The college now possesses fine buildings to which Government had made grants-in-aid, good laboratories for Physics and Chemistry, a cinema hall and excellent play-grounds. Teaching is carried out by Jesuit Fathers assisted by a few lay masters. There are nine standards in the school (excluding the infant department) where boys are prepared for the Senior Cambridge Examination. The College Department prepares students for the Intermediate Arts and Intermediate Science Examinations of Calcutta University. Boys are admitted between the ages of 7 and 12 in the school department; for admission to the college department students must have passed the Matriculation in the First or Second Divisions. The majority of pupils are Catholics but boys of other religious denominations are admitted: in 1944 there were 31 Indian boys in the school in addition to boys from Sikkim, Nepal and Tibet. In all there were 390 boys on the rolls of whom 317 were boarders and 73 day boys. In the college department there were 30 day students most of them hillmen. Fees vary but in 1944 for day scholars the tuition fee was Rs. 200 per annum and the inclusive charge for boarders Rs. 950 per annum.

Mount Hermon, an institution of the Methodist Episcopal Church of America, is a co-educational school. Its Board of Governors is made up of missionary representatives of many different missionary societies

The school was founded in 1895 in order to provide a Christian school in a favourable climate, where missionaries' and other English speaking children might be trained physically, mentally and spiritually under Christian influence, guidance and education. The school buildings and play-ground are situated in the centre of the 100-acre Mount Hermon Estate at North Point, Darjeeling.

The school is on the approved list of the Cambridge Syndicate and it receives maintenance and teachers' salary grants from the Government of Bengal.

Mount Hermon is a secondary school and follows the courses prescribed by the Education Department for European Schools, Bengal, with additional courses in music (including preparation for Trinity College Music Examinations), handwork and domestic science. All pupils take part in organised games and physical training.

On 31st March 1944 the enrolment was 248 of which number 132 were boys and the remainder girls. One hundred and ninety-one were classed as Europeans and Anglo-Indians and the remainder were Jews, Parsis and Indians. Two hundred and one were boarders and the rest day scholars.

The main school building, known as Queen's Hill, is one of the finest educational buildings in India. Three additional hostels accommodate the boys.

At present there are 38 members on the staff, American, English, Scotch and Anglo-Indians. The Principal is the Manager of the Mount Hermon Estate and his wife is the Vice-Principal of the School.

During the Second World War of 1939-45, a need arose for education for the children of British residents in India who normally sent their children to Europe to be educated and who desired for them conditions comparable with those which they expected to find in Europe. Various schools were started in India to supply the needs of such parents. Two of those which opened in Darjeeling were the New School and Singamari School. The New School was founded in Calcutta in 1940 and first moved to Jalapahar for the summer in 1941: later the main school was transferred to Jalapahar where it continued until December 1944. It provided education from the Kindergarten to the Higher Certificate stages and numbers were limited to 170 European boys and girls. Singamari School was opened in 1941 and was closed after the termination of the War.

The oldest of the schools for Europeans in Kurseong is the Victoria Boys' School. It was founded in 1879 by Sir Ashley Eden for boys and girls and was housed in Constantia, at present the residence of the Subdivisional Officer. The School was moved to Dow Hill in 1880. In 1897 the present Victoria School was opened for boys and the Dow Hill School for girls was separated. The Victoria School is a Government school, established originally for the children of Railway employees, later opened to the sons of Government servants and now also to European or Anglo-Indian boys of parents of any occupation. The capacity of the school is about 200, most of whom are boarders. Classes are taught from standards II to IX and for the Cambridge School Certificate. There are also classes preparing for the Intermediate Arts Examination of Calcutta University. The School is situated on a commanding site near

the top of the Dow Hill above Kurseong and has excellent buildings including an assembly hall, gymnasium and class rooms with well equipped laboratories. It has also fine play-grounds. The staff consists of a head master, nine assistant masters, two lady teachers, a physical training and games master, an Indian Language teacher, a steward, a lady housekeeper, 3 matrons and 4 clerks.

The Dow Hill Girls' School was separated from the Victoria School in 1897 and in 1898 opened as a Middle school with 80 children and a staff of a head mistress, 5 junior mistresses and a matron. It can now accommodate about 200 children as boarders. The accommodation includes a dormitory for little boys up to the age of 8½. In 1944 there were also about 10 day scholars. This school is a Government school originally intended to provide education for children of Government servants of the Anglo-Indian and Domiciled European community. The majority of pupils continue to come from these communities but in 1944 there were in the school 14 Indian children of various communities. The school prepares pupils for the Senior and Junior Cambridge Local Examinations: all the main subjects are taught. Music, domestic science, games and art are all part of the curriculum and Bengali is taught as a second language. The school occupies a site near that of the Victoria School and has excellent buildings and playing grounds which include tennis and badminton courts. There is a hospital serving both schools which has a fully qualified staff of three trained nurses.

St. Helen's College, Kurseong, is conducted by the Daughters of the Cross of Liege and was opened in a small rented house in 1890 by Mother Marie then Provincial. Expansion made it necessary to move into larger premises in 1891 and when the earthquake of 1897 had made the latter unsafe a second move followed. The foundation stone of the present building was laid in 1899 and the unfinished building was occupied in 1900. At the present time the school can accommodate 180 boarders and has generally 200 on the rolls. The staff consists of the Sister Superior who is head mistress, twelve Sisters and ten lay mistresses. The course of studies is that laid down in the Code and includes preparation for the Cambridge Local Examinations. Particular attention is given to musical education and elocution and pupils are prepared for the usual music examinations. There are commercial classes and the curriculum includes physical culture and games; the school has good grounds for tennis, hockey, net-ball and badminton.

The Goethals Memorial School was founded in memory of the Most Rev. Dr. Paul Count Goethals, S.J., Archbishop of Calcutta, and was formally opened in 1907 by Sir Andrew Fraser, Lieutenant-Governor of Bengal. The school is under the management of the Christian Brothers

of Ireland and occupies an estate of over 140 acres two miles from Kurseong. It was founded to impart a sound literary, moral and religious education to Catholic boys of the European and Anglo-Indian communities but Christian boys of other denominations as well as non-Christians are received as boarders. In 1944 there were 225 boarders and 19 day scholars. Studies are those laid down in the Code for European Schools and pupils are prepared for the Cambridge School Certificate and Junior School Certificate Examinations.

The most important establishment for European education in Kalimpong is that founded in 1900 by the late the Very Rev. Dr. J. A. Graham, C.I.E., D.D., Guild Missionary of the Church of Scotland. He was, until his death on the 15th of May 1942, the Honorary Superintendent of the St. Andrew's Colonial Homes which had been founded by him. The object for which these Homes were established was "to provide for children wholly or partly of British or other European descent such an education and training based upon Protestant principles, as may fit them for emigration to British Colonies or for suitable work elsewhere". The Homes are situated on an estate of about 611 acres on the hill-side above the Kalimpong Bazar at heights ranging from 4,500 to 5,000 feet above sea-level. There is accommodation for 600 children in cottages scattered over the hillside, each cottage holding 24 to 34 children and being in charge of two ladies from Britain or the Colonies. There are no servants in the cottages and all work is done by the children themselves. This gives them excellent practical training in domestic work which proves of great use in after-life. The Homes have excellent buildings including 18 cottages, a hospital and isolation block, 8 school buildings, 11 staff houses, a Chapel built in memory of Mrs. Graham, wife of the founder, administration buildings (stores, bakery, farm, dairy, hostel, clothing depot, workshops and office), a swimming bath, a workers' club house, Scouts' and Girl Guides' dens and a holiday home for old pupils. The Homes have a Higher Grade School with a Secondary Section. On the Higher Grade side, pupils are taken up to the Board of Apprenticeship Training Examination and on the Secondary side are prepared for the Cambridge Examinations and the Calcutta University Matriculation. There is a teaching staff of 26 teachers most of whom come from Britain and half of whom are University graduates. Three thousand one hundred and ten children have been received into the Homes and old pupils are to be found in all parts of the world, many occupying responsible posts and acquitting themselves with credit. The Homes are managed by a Superintendent controlled by a Board of Management meeting three times a year in Darjeeling, Kalimpong and Calcutta.

St. Joseph's Convent, Kalimpong, was founded in 1922 as a sanitarium for Sisters teaching in

plains schools and in 1926 was opened as a boarding school for Anglo-Indian and European girls by the Sisters of the Congregation of Saint Joseph de Cluny. In 1944, there were on the rolls 140 boarders and 50 day scholars including 25 hill children. Boys up to the age of 8 are admitted. Children are prepared for the Cambridge Senior Certificate Examinations and the Trinity College Music Examinations. The Catholic religion is taught but children of other denominations are admitted. Particular attention is given to health and physical development which are supervised by a doctor and a games mistress. The school has two large playing fields.

A first grade Government College, teaching up to B.A. Honours of Calcutta University, was opened in Darjeeling in 1948. The college is housed in the old St. Michael Girls' School on the Cart Road.

LAND TENURES

Land of the district is occupied by departments of Government or has been granted by Government to private persons or public bodies on a variety of conditions. There are the following six agencies by which Government manage their revenue interests and assess and collect their dues:

- (1) The Tauzi Department of the Deputy Commissioner's office which deals with 269 estates and tenures with a total area of 150 square miles. The settlement, assessment, and collection of revenue and cess of all the lands in the district leased for tea is centralised in this office which also controls the collection of revenue and cess from the four permanently settled estates and manages a large number of petty non-agricultural grants.
- (2) The Sadar Kurseong Khas Mahal Department also located at Darjeeling and in charge of a gazetted officer under the direction of the Deputy Commissioner. This Department manages the rural estates of Government in the Sadar and Kurseong subdivisions (Tauzi Roll Nos. 26, 95, 952, 1006, 1064), grants within the Darjeeling Municipality other than tea grants (Tauzi Roll No. 1079) and the roadside lands of the Siliguri-Darjeeling Cart Road (Tauzi Roll Nos. 96, 1017 and 1121). The area managed by this Department is 57.30 square miles.
- (3) The Superintendent of the Kalimpong Development area of 2.86 square miles, a gazetted officer who works at Kalimpong under the direction of the Deputy Commissioner. This is a building estate in Kalimpong town (No. 1080 on the Tauzi Roll).
- (4) The Manager of the Kalimpong Khas Mahal (No. 93 on the Tauzi Roll), a large

. rural estate of 172.98 square miles belonging to Government. The Manager is a gazetted officer with his headquarters at Kalimpong who works under the direction of the Deputy Commissioner.

- (5) The Manager of the Terai Khas Mahal whose office is located in Siliguri. He is a gazetted officer working under the orders of the Deputy Commissioner. This rural estate is 230.10 square miles in area (Tauzi Roll Nos. 91, 1060 and 1124) and comprises all the land in the subdivision not leased for tea or worked as reserved forests. Administration of these estates is simplified by reason of the fact that Government is in direct relation only with a limited number of the larger holders of land, from whom the collection of revenue and cesses is a routine operation.

- (6) The Darjeeling Improvement Fund controlled by the Deputy Commissioner who places management in the hands of a Deputy Collector stationed at Darjeeling. Most of the bazars and *huts* in the district belong to Government and the assessment and collection of dues from them is carried out by an elaborate agency, controlled by the Fund.

The table which follows shows the various methods by which Government administer its interests in the land of the district:

		Estate No.	Area (acres)	Revenue Demand Rs.	Cess Demand Rs.
A Revenue-paying estates—					
(1) Managed by Tauzi Department					
LR Tea	M	2	6	34	0
LR Others	M	9	84	771	0
LR Tea	R	87	64,045	99,876	22,177
PS Others	R	4	9,996	316	706
LR Others	R	85	3,854	7,407	1,331
DIF Others	M	20	77	684	0
DIF Tea	R	43	18,076	19,209	6,180
DIF Others	R	19	65	895	195
Total—A (1)		269	96,153	129,192	30,589
(2) Managed by the Sadar Kurseong Khas Mahal Department					
LR Others	R	6	35,445	40,490	64
DM Others	M	2	764	8,093	0
CW Others	R	1	461	5,579	167
Total—A (2)		9	36,670	54,162	231
(3) Managed by Kalimpong Khas Mahal and Development Departments					
LR Others	*R	2	112,540	100,346	1,336
Total—A (3)		2	112,540	100,346	1,336
(4) Managed by the Siliguri Khas Mahal Department					
LR Others	R	3	147,265	147,458	28,048
Total—A (4)		3	147,265	147,458	28,048
Total A—Revenue-paying estates		283	392,628	431,158	60,204
B Revenue-free estates—					
(1) Privately owned (Register BI)					
Tea	M	3	401	0	0
Others	M	92	722	0	0
Tea	R	143	73,885	0	25,876
Others	R	35	1,628	0	652
Total—B (1)		273	76,636	0	26,528

Estate No.	Area (acres)	Revenue Demand Rs.	Cess Demand Rs.
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(2) Public Lands (Register BII)

Others	22	322,116	0	12,157
Total—B (2)	22	322,116	0	12,157
Total B—Revenue-free estates	295	398,752	0	38,685
Grand Total—All estates	578	791,380	431,158	98,889

Note—In the above table "Tea" means land under tea lease and "Others" means land not leased for tea.

The following symbols have been used:

Estate or tenure settled	Revenue credited to
PS Permanently	Province (Land Revenue)
LR Temporarily	Province (Land Revenue)
DIF Temporarily	Darjeeling Improvement Fund
DM Temporarily	Darjeeling Municipality
CW Temporarily	Province (C & W)

M—Estates or tenures situated in the Darjeeling Municipality.

R—Estates or tenures situated outside the Darjeeling Municipality.

The table shows that the area of revenue-paying estates is 613.3 square miles, of privately-owned revenue-free estates is 119.7 square miles and of publicly-owned revenue-free estates is 503.3 square miles. The total of the three comes to 1,236 square miles. This total is based on the Revenue Registers of the Deputy Commissioner's office and is only approximately correct, the area of the district being only 1,200 square miles.

A detailed description of the more important features of the land revenue administration of the district now follows, commencing with an account of the four permanently settled estates.

Permanently Settled Estates—The history of the four permanently settled estates in the district is of special interest. An area of 115 square miles in the north-western corner of the district, lying between Nepal, Sikkim and the Little Rangit river was annexed from after 1850 in consequence of the treatment suffered by Dr. Campbell and Sir Joseph Hooker in Sikkim. After the annexation, Chebu Lama, who had been agent of the Raja of Sikkim at Darjeeling, received a lease of the above tract for a term of three years at an annual rental of Rs. 20 in recognition of the services rendered by him during the disputes with Sikkim. This lease was subsequently renewed in 1853 and in 1862 Chebu Lama asked that, in consideration of his services, the land held by him should be granted in perpetuity at a nominal rent. Government acceded to his request by making a grant of the land in proprietary right to him and his heirs for ever, subject to an annual payment of land revenue to Government of Rs. 500 during his life and of Rs. 1,000 after his death. Subsequently, after his death in March 1866, the tract was leased jointly to Rechuk Dewan, his son, Phurboo Dewan, his nephew

(brother's son), and Tenduk Pulger, his manager (described as his nephew). In 1882-3 part of the Estate, containing the forests of the Singalila Range and covering an area of 42,382 acres out of the total area of 74,016 acres according to Colonel Tanner's survey of that year, was sold to the Forest Department. Another area of $2\frac{1}{2}$ square miles (or 1,645 acres) in 1883 was transferred with the approval of the Bengal Government to Sonam Sring, a nephew of Raja Tenduk. In 1889 Phurboo Dewan, one of the parties to the joint lease, transferred his own one-third share to Rechuk Dewan, son of Chebu Lama, and one of the co-sharers in the joint lease. Thus, Rechuk Dewan's share became two-thirds and Raja Tenduk's one-third. A private partition was also made between the co-sharers and separate leases were issued in 1893 in respect of the different shares. Rechuk Dewan's share comprising 19,993 acres retained the old Tauzi No. 26 and its revenue was reduced to Rs. 632. Tauzi No. 951 was assigned to the Raja's own share of 9,996 acres and its revenue was fixed at Rs. 316, while Sonam Sring's share of 1,645 acres got Tauzi No. 952 and its revenue was fixed at Rs. 52. Upon the death of Rechuk Dewan, Tauzi No. 26 (Kelling Estate) fell to the shares of his widow and daughters. But, as under Sikkim law females do not inherit, the estate escheated to Government and Government took formal possession of it on the 1st of April 1924 and made it a Khas Mahal. Tauzi No. 952, which was allotted to the share of Sonam Sring and is known as Samabong (Kolbong) Estate, failed to pay Government Revenue in 1909 and was also resumed by Government and has become a Khas Mahal in consequence. Government paid off the debts of Estate No. 952 when it was resumed and granted the widow a pension, 60 acres of land and two houses rent-free. These grants are to continue to her son and his heirs.

The remaining share of 9,996 acres or $15\frac{1}{2}$ square miles, bearing Tauzi No. 951 and known as Raja Tenduk Pulger's Estate or the Kurmi Estate, descended on the death of the Raja to his five sons, who amicably partitioned it among themselves. Four Tauzis were formed *viz.*, Tauzi Nos. 951, 1116, 1117 and 1118), of which the first and third fell to the shares of the first and second sons of the Raja and have in course of time passed into the possession of Mrs. R. S. Pulger, wife of the fourth son, who leased it for 20 years to Mr. N. C. Goenka of Darjeeling on an annual rent of Rs. 2,300. These two shares contain the two important *hats* of Pulbazar and Bijanbari, which have also been separately leased to Mr. Goenka for a period of 18 years and four months from the 1st September 1940 on an annual rent of Rs. 6,500. Bijanbari has since developed into an important trade centre as it is the terminus of a ropeway to Darjeeling. Tauzi No. 1118 fell to the shares of the third son's widow and her sons, while Tauzi No. 1116, containing double the area and bearing double the proportionate revenue, fell to the shares of the fourth and fifth

sons jointly. These four Tauzis are the only permanently settled estates of the district and have between them a total revenue of Rs. 316.

Revenue-paying Tea Estates—The 87 and 43 revenue-paying tea estates are assessed to revenue at rates of Rs. 1-8 per acre in the hills and at Rs. 2 per acre in the Terai. Leases and renewals are granted for terms of 30 years with rights of renewal for a similar period. The rights conferred are heritable and transferable but transfers have to be registered and part transfers are only valid with the previous sanction of the Deputy Commissioner. Other conditions are that no new markets are to be established and no subletting to be permitted: lessees agree to maintain boundary marks and to supply information of births and deaths and of the progress and outturn of tea cultivation. Jute lands in the Terai held on 20-year leases are purchased from time to time by holders of 30-year tea leases. Lands so purchased are regranted on 30-year lease terms and are transferred from the management of the Terai Khas Mahal to that of the Tauzi Department at Darjeeling.

Estates classed "Others" under the various headings of A(1) in the table above have nothing of general interest of further mention.

Sadar Kurseong Khas Mahals—The nine estates managed by the Sadar Kurseong Khas Mahal Department bear the following numbers in the Tauzi Roll: Nos. 26, 95, 96, 952, 1006, 1017, 1064, 1079 and 1121. Of the above, the Kelling estate (Tauzi No. 26) and the Samabong (Kolbong) estate (Tauzi No. 952) formed part of Chebu Lama's grant as explained above.

The early settlements of revenue were with individual farmers who were made responsible for the revenue fixed in lump on the block or blocks leased to each of them. The first regular settlement of these Mahals appears to have been made in 1884. The system then adopted has come to be known as the joint rayatwari system by which settlement was made jointly with the *mandal* and tenants of each block. This 1884 settlement was for a term of 10 years. Under it, blocks were divided into three classes with different rates of revenue: raiyats had a nominal right of occupancy but in fact they were entirely at the mercy of *mandals* who could oust them at pleasure. The *mandals* were given a commission of 10 per cent. on the revenue demand and enjoyed the right and profit of settling waste lands.

While this system proved successful as far as the collection of rent was concerned, it was otherwise unsatisfactory because *mandals* realised as much as they could from raiyats and looked to their own interest and not to that of Government or of the raiyats.

In the next settlement of 1894, the joint rayatwari system was given up. Blocks were

now divided into three classes according to the quality of the soil predominating in each and settlement was made direct with each raiyat who was given a separate lease for his holding. Lands were reserved for grazing. Persons found to have been in occupation for 12 years or more were recorded as raiyats having rights of occupancy. Subletting was forbidden and raiyats found holding under other raiyats were recorded as under Government whenever they had acquired a right to compensation for disturbance. As in earlier settlements, the *mandal's* commission was fixed at 10 per cent. of the gross demand but the power of granting new settlements was taken from him. To compensate for the low income of some *mandals*, either two blocks were amalgamated or the *mandal's* own lands were allowed to be held rent-free.

A third settlement was made in 1907-8 and a fourth in 1920-2. In the third settlement, Government ordered replacement of the block rates by soil rates. In the fourth settlement, the system of soil classification was made more elaborate and several new classes were added.

Mandals no longer hold any land rent-free and their commission is 10 per cent. not on gross demand but on gross collections.

Town Khas Mahal—The last of the estates managed by the Sadar Kurseong Khas Mahal Department is Tauzi No. 1079 described as the Town Khas Mahal. It includes all the Khas Mahal lands other than Cart Road lands or those leased for tea lying within the town of Darjeeling. The revenue of the two Khas Mahal has been assigned to the Municipality.

The history of the administration of town leases is somewhat confusing. For some short time after the cession of the old Darjeeling territory in 1835, there appears to have been but little demand for land. The applications put in were dealt with by the Superintendent at his discretion but in 1838 the filing of a large number of applications for building sites led to the issue by Government of a set of rules for the grant of land. These rules were issued in September 1839 and provided that the conditions of any grant made previously by the Superintendent should be binding on Government but that, for the future, land should only be given on the following terms:

- (1) land suited for building locations, for which purpose a space was specially reserved 200 yards broad on either side of the principal road from Kurseong to Darjeeling;
- (2) cleared spaces of undefined size at Pankhabari, Kurseong, Mahaldiram and Darjeeling to be reserved for bazars; and
- (3) land not required for either of the above purposes to be available for farming leases.

According to the original rules, building leases were to be in perpetuity and subject to a rent of Rs. 50 for a full location, ordinarily 100 yards square. The limitation on size seems to have been disregarded from the first and in 1841 the area of a full location was raised to 200 yards square. This again was often disregarded and many grantees have much more land in their possession than they were entitled to hold under the rules.

In a letter, dated the 23rd December, 1840, the Court of Directors modified the rule authorising leasing in perpetuity and limited the period of leases to 99 years. But before their orders were received, 65 full locations and 10 half locations had been allotted in perpetuity. After receipt of the orders, 76 full locations, 45 half locations and 24 quarter locations were granted for 99-year terms. Seven sites were also assigned to applicants by letter for which leases were never granted.

Under the rules of May, 1859, the holders of location leases were allowed the option of converting them into fee-simple rights at the rate of 20 years' purchase of their annual rent. A large number of locations were commuted under these rules.

In 1879, the grant of building sites belonging to Government was regulated by special rules which prescribed that a lease applied for should be sold by public auction, that the rent should be at the rate of Rs. 50 per acre, that the size of the location should be limited to 2 acres and that the period of the lease should be 99 years. These rules were not strictly followed and special orders of Government are taken on every grant proposed.

Building locations and lands within the Municipal area have been settled for the establishment of various schools, clubs and monasteries and for cultivation. Settlements have been made in consultation with the Municipality and with the approval of Government. These settlements are for periods ranging from 5 to 50 years and are included under Tauzi No. 1079.

The relations between Government and the Municipal authorities in connection with the revenue administration of lands within the Municipality have a somewhat intricate history. These relations had their origin in the "Location Fund" required when the early growth of the town called for local arrangements for conservancy, communications and other amenities. For the above purposes, the Government of India, in the year 1838, ordered that "the quit rents paid by the settlers in the ceded portion of Darjeeling should be appropriated to fund to be called the 'Location Fund' and employed for conservancy and for purposes of local improvement". The rents of the bazar to be built out of this fund and of shops erected on public lands were afterwards added.

The Location Fund was under the management of a Committee until 1850 when, on the establishment of the Darjeeling Municipality under Act XXVI of 1850, it was handed over to the Municipal Commissioners.

The Municipality, in 1879, claimed proprietary rights over location lands and the Government of India, in their letter No. 2289 of the 14th of August 1880, decided that "the Municipality should continue to benefit by the quit rents reserved upon location sites within its limits but that they were authorised to grant leases at such rates and for such terms only as Government might from time to time approve and that the Municipality should have full proprietary rights over an area of about 44 acres comprising the Central Bazar and the Native Town, on condition that they claimed no proprietary rights over certain sites within that area held by Government or over any locations which might have been granted up to that date in fee-simple within their limits and that Government should be entitled to take up such other sites as might be required from time to time for public purposes on payment only of a fair rent to be assessed by Government in each case". The Municipality accordingly continued to collect rents from all the locations within its limits, though the proprietary rights over these lands remained with Government.

The proprietary right of the Municipality to the 44 acres of bazar land, excluding the location areas mentioned above, finds recognition in the entry of these bazar lands in the register of revenue-free properties in the office of the Deputy Commissioner. The Municipality manages this property and has spent large sums on buildings from which a considerable part of its revenue is derived.

In accordance with the orders of Government contained in letter No. 2289 of 14th August 1880, some small scattered plots (485 square feet) of un-assessed Government lands within the 44-acre block over which the Municipality has proprietary rights have been formed into a separate estate bearing Tauzi No. 1113. The plots are treated as holdings under Government. The rents (Rs. 55) were not meant to be assigned to the Municipality and are credited to Government as Land Revenue. This estate is managed by the Tauzi Department and not by the Sadar Kurseong Khas Mahal Department.

It was ordered by the Board of Revenue in their letter No. 2817A of the 6th of September 1911, that the locations, the rents of which had been assigned to the Darjeeling Municipality, should be brought on the Tauzi Roll and that the rents should, in the first instance, be collected by Government and then made over to the Municipality in a lump sum after deducting collection charges. Nothing was specifically mentioned in that order about Government lands in Bhutia Basti or those at Ghum and Jorebungalow: consequently these

last two properties remained under the control of the Municipality.

After locations had been brought on the Tauzi Roll, difficulties about the application of Act X of 1859 arose because some of the leases had been granted by the Municipality and the rents could therefore not be treated as revenue. To meet these difficulties, Government, in their letter No. 2356M of the 3rd July 1914, withdrew the power to grant leases from the Municipality. Certain lease-holders were directed to get their leases renewed by Government and their locations were then brought on the Tauzi Roll as ordered by the Board in 1911.

Tauzi No. 1079 was created in 1919 when all rent-paying locations within the Municipality managed by Government were ordered by the Board to be brought under one Tauzi. The revenue collected, less collection charges, is paid to the Municipality after the close of each financial year.

The lands in Bhutia Basti are not locations but belong to Government. They lie outside the 44 acres but within the limits over which the Municipality's control and management have been recognised by Government (paragraph 8 of Order M/5L-5/2 of 20th October 1890). All tenants are tenants-at-will with whom settlements were made by the Municipality subject to Government's approval. Government maintained their proprietary rights over this area but allowed the rents to be enjoyed by the Municipality. In their letter 9883Ex. of the 30th August 1933, Government ordered that the Municipality should settle no further land in Bhutia Basti and that this area should be treated as part of the Town Khas Mahals. Management was accordingly transferred from the Municipality to Government with effect from the 1st April 1933 and the area now forms part of Tauzi No. 1079.

The Municipal grazing lands and the Ghoompahar Jorebungalow lands (bazar and grazing), which include lands at Bhanjang (a basti at Ghum) and Batasia, are also Government lands over which the Municipality's control was recognised by the order of 20th October 1890. The control was subject to a condition that the rates of rent and conditions of letting such lands would be approved by Government. The Municipality has accordingly been settling lands with tenants (tenants-at-will) on approved terms. Two hundred and eighty acres were resumed by Government for settlement with Mr. Edward Keventar in 1919 and Subedar Bhagiman Limbu in 1921. The area settled with the Subedar (2 acres) was made into a separate estate Tauzi No. 1092. The rest of the 280 acres was surrendered to Government who settle it with tenants and pay the rents to the Municipality as part of Tauzi No. 1079. The balance of these grazing lands (622 acres less 280 acres) is managed by the Municipality: it receives from them an annual income of about Rs. 7,000.

Kalimpong Development Area—Two estates are managed at Kalimpong. The first is the Kalimpong Development Area (Tauzi No. 1080) with an area of 1,833.63 acres or 2.86 square miles. It is between 3,400 feet and 4,650 feet above sea-level and is bounded on the north by the Kalimpong Khas Mahal block and the bazar or the Darjeeling Improvement Fund, on the south by the reserved forests of Tasiding, Ringkingpong and Kamesi, on the east by the Bong Khas Mahal block and on the west by the Kalimpong Khas Mahal block. Within the area, some patches of land, lying on the sides of unsettled jhoras and measuring in all 170.03 acres, have been handed over to the Forest Department for protective work.

Before this area was selected for the purpose of establishing a hill station alternate to Darjeeling, it was part of the Khas Mahal estate in which the policy of Government was that no land should be settled with persons who were not hillmen. This policy was revised in respect of the land acquired for the above purpose.

The scheme for developing Kalimpong originated in a note recorded by the Hon'ble Mr. C. J. Stevenson-Moore, then Member of the Board of Revenue, after he visited Kalimpong in 1914. Thereafter the Tista was bridged, Kalimpong connected with Tista bridge by a cart road and a new subdivision created with headquarters at Kalimpong. The land for building development was acquired in 1919 at a cost of 2½ lakhs of rupees and a water-supply was provided at a capital cost of Rs. 8½ lakhs. Main and minor roads have been constructed in the area by Government at a cost of nearly 7 lakhs of rupees. Water connections and water-borne sanitation are insisted on for every building in the area and building regulations require every building plan to be up to a high specification and approved by a local committee before building can commence. Most buildings have electricity laid on. Street lighting by electricity has been completed.

The Development area is divided into two parts, Part I of 900.00 acres was surveyed in 1928-9 and the survey of Part II (933.63 acres) was completed in 1942.

Settlement was at first confined to Part I and progress of settlement was slow from 1919 to the 31st March 1941 by which date the total *salami* received for settlement of plots amounted to Rs. 207,235. Since 1941 *salami* received has been Rs. 412,026 and applications were being received from all parts of India. By the end of 1943-4, 379 out of 606 building plots had been settled and prospects of settling the rest were excellent. The total rent and cess demand on 31st March 1944 was Rs. 42,660 per annum. Rupees 8,863 was realised from the area as water-tax in the year 1943-4.

Up to 1941, administration of the area was in the hands of the Subdivisional Officer aided by a local advisory committee and directed by the Deputy Commissioner. In 1941 a Superintendent was appointed for the area who works under the Deputy Commissioner.

Kalimpong Government Estate—The Kalimpong Government Estate is 172.98 square miles in extent and bears Tauzi No. 93 in the registers of the Deputy Commissioner. The area of the present Kalimpong subdivision which lies east of the Tista was annexed from Bhutan under the Sinchula treaty of 1865 concluded at the end of the Bhutan War. It was first notified as the Dalingkot subdivision of the Western Duars district but in the following year it was transferred to Darjeeling district.

The Bhutan Government had realised a poll tax from the population through *mandals* and this system was continued after annexation; realisation of this tax in 1865 amounted to Rs. 640.

Large areas were reserved as Government forests and practically the whole of the rest of the area was administered as a Government estate, Government dealing with tenants direct. After annexation, immigration from Nepal and Sikkim was considerable and by 1882 when the first survey and settlement of the most developed portion of the estate was carried out, the receipts from the poll tax had risen to Rs. 11,800. Population was then 12,683. Most of the immigrants were Nepalese who took the lead in developing agriculture by ploughing, a method which displaced the less efficient one of *jhum* cultivation formerly practised by the original inhabitants.

The most recent settlement took effect from 1921 and was to be current for 15 years instead of 10 years as had been the term of previous settlements. Population had increased to 41,203 and the total area assessed was 63,119 acres: there was no enhancement on the rate for cardamom lands but on the ground that prices of produce had increased, rates of revenue on other classes of land were increased: on paddy (panikhet) lands 25 per cent to 31 per cent., on sukhakhet from 50 per cent. to 60 per cent. and on waste lands from 33 per cent. to 50 per cent. The total annual demand thus rose to Rs. 59,620.

The period of settlement expired in April 1936 and the old leases were renewed until a fresh settlement could be made. There has, however, been an increase in paddy and cardamom cultivation and three new blocks have been opened since the 1921 settlement. The annual rent demand has, from these causes, increased to Rs. 63,806. As the total area under assessment is 63,727 acres and there are 10,608 tenancies, the average size of a holding is 6.00 acres and the average rate of rent Re. 1 per acre.

Mortgages are of two kinds. "Mashikata" gives possession for a fixed number of years in

lieu of both principal and interest and "Biyaz" gives possession in lieu of interest only.

Government is the proprietor of these estates and there is no private landlord or tenure-holder between Government and the *raiya* who is usually the tiller of the soil. The estates are divided into blocks in each of which is a *mandal* or headman. The *mandals* are the direct representatives of Government on the estate and it is their duty to collect the rent due from the *raiya*s in their blocks and remit it to the Treasury, to report all transfers of land, to inform the police of any crimes that may occur, to see that the roads in their blocks are properly maintained and to supervise the construction of any new roads that may be required, to report births and deaths, to ensure that *raiya*s provide labour and provisions as required, to prevent improper or unauthorised felling of trees and to preserve grazing and waste lands. In return the *mandal* is given 10 per cent. of gross collections made by him. He is the acknowledged head of the community and arbitrates in all disputes except those relating to marriage, divorce and inheritance which are settled by *panchayats*. In the West Tista and Sadar Khas Mahals *mandals* no longer get rent-free lands or free grazing but in the Kalimpong Government Estate *mandals* still get free grazing and certain *mandals* continue to get rent-free lands although these are resumed whenever a *mandal* dies and his son is not appointed *mandal* in his place. The *mandali* system works on the whole very well. It works smoothly because it is congenial to the people and ensures that the estate is administered with due regard to the feelings and needs of the tenantry. Some *mandals* are from time to time found to be inefficient or dishonest but most perform adequately the simple duties assigned to them by custom.

Rate and incidence of rent in Hill Khas Mahals—Rates of rent in the West Tista Khas Mahals in the 1884 settlement were based on three classes of blocks for which rates of annas 12, 9 and 6 per acre were fixed: allowances for fallow land however virtually reduced the rates to 9, 6 and 3 annas an acre. In 1894, blocks were classed according to rough estimates of soil fertility, blocks where black soil fit for all crops predominated being put in the first class and predominantly red soil putting the block in the third class. This time no allowance was made for fallow land, the rates remaining unaltered. In 1906 the block classifications were maintained but a new system of soil classification was introduced: (1) *sukhakhet* for dry cultivation, (2) *panikhet* for land where paddy could be grown and (3) waste. The following were the rates:

		First class blocks	Second class blocks	Third class blocks
		Rs. a.	Rs. a.	Rs. a.
<i>Sukhakhet</i>	..	0 15	0 12	0 8
<i>Panikhet</i>	..	1 4	1 0	0 11
Waste	..	0 3	0 2	0 2

In this settlement not only the quality of the soil but all relevant facilities were taken into consideration in classifying blocks, as in the Kalimpong system. In the 1920-3 settlement other land classifications were added, viz., *gharari* (homestead) and *bagaicha* (orchard) and waste lands were sub-classified into *naya bajo* (current fallows), *purana bajo* (old fallows), *laik bajo* (culturable waste) *gar laik bajo* (unculturable fallows).

The rates fixed were:

		First class	Second class	Third class
		Rs. a.	Rs. a.	Rs. a.
<i>Sukhakhet</i>	..	1 8	1 3	0 13
<i>Panikhet</i>	..	1 10	1 5	0 14
<i>Naya bajo</i>	..	0 3	0 3	0 2
<i>Gharari or bagaicha</i>	..	1 12	1 8	1 4

The rate for cardamom lands in all these settlements was Rs. 10 per acre. These rates compare with Rs. 2 per acre for *sukhakhet* land and half the produce for cardamoms in the Rongbong private estate.

The Relling Estate (Tauzi No. 26) came into Government's hands in 1924 and a settlement was made in 1928.

The rates settled were:

				Per acre Rs. a.
Cardamoms	..	..	..	10 0
<i>Panikhet I</i>	..	..	..	1 4
<i>Panikhet II</i>	..	..	..	1 0
<i>Sukhakhet</i>	..	..	..	..
Homestead	..	..	..	..
Orchard	..	I	..	1 0
Bamboo	..	II	..	0 12
New fallows	..	..	..	..
Old fallows	..	..	..	0 6

Previous rates were found to be Cardamoms Rs. 10 per acre and all other classes of land—in two blocks annas 9 per acre and in the remaining blocks annas 12 per acre. In 1935 a reclassification took place resulting in the elimination of the class *Panikhet II* and slight lowering of rates for *Sukhakhet* and old fallows.

In the Samabong (Kolbong) Estate (Tauzi No. 952), the settlement of 1928 fixed the following rates:

				Per acre Rs. a.
Cardamoms	..	..	..	10 0
<i>Panikhet</i>	..	..	..	1 4
<i>Sukhakhet</i>	..	..	..	..
Homestead	..	..	..	..
Orchard	..	..	..	..
Bamboo	..	..	..	1 0
Current fallows	..	..	..	..
Old fallows	..	..	..	..
Culturable waste	..	..	..	0 6

Previous rates when the estate had been in the hands of the proprietor were:

				Rs.	a.
Cardamoms	..	..	..	10	0
<i>Panikhet</i>	..	..	..	1	4
<i>Sukhakhet</i> , etc.	..	..	..	0	14
Culturable waste	..	..	..	0	8
Unculturable waste	..	..	..	0	2

Rates in the Kalimpong Government Estate were fixed in the first settlement in 1882 as follows: 8 annas per acre for the more fertile blocks and 4 annas per acre for the less fertile. There was no soil classification.

		<i>Panikhet</i> Rent per acre			
		1901		1921	
		Rs.	a.	Rs.	a.
Group I	..	1	4	1	10
Group II	..	1	0	1	5
Group III	..	0	11	0	14
Group IV	..	0	9	0	12
Group V	..	0	8	0	10

Rents for *panikhet* were between 1/20th and 1/33rd of the estimated net profit of the tenant (net profit being taken at half the gross outturn). For *sukhakhet* rents were between 1/14th and 1/23rd of the net profit and for waste between 1/11th and 1/16th.

The average size of a holding is to a great extent controlled by the policies followed for regulating transfers of holdings. Transfers which increase the size of a holding above 20 acres or reduce it below 5 acres are not sanctioned. The result is that in the West Tista Khas Mahals the average size of a holding is 5.6 acres and on the Relling and Samabong Estates 7.5 acres. In the Kalimpong Government Estate the average is 6.00 acres.

Terai Khas Mahal—There are three estates managed at Siliguri by a Khas Mahal Officer under the control of the Deputy Commissioner. Two estates (Tauzi Nos. 1060 and 1124) are very small; the former 328 acre of Cart Road Reserve land on the road between Sukna and Siliguri and the latter a very small area settled with the Siliguri Union Board. The only important estates is Tauzi No. 91 under which there are 860 *jotedars* and *raiya*s who pay revenue or rent direct to Government at Siliguri, the annual demand being about 1½ lakhs of rupees. The area of the subdivision is about 266 square miles of which 41 square miles is forest. The estate does not include areas in the Terai leased for tea and the actual area managed is roughly 200 square miles.

The Terai was annexed from Sikkim in 1850 and the southern part was first attached to the Purnea district, the Collector of which settled land revenue for three years. Dr. Campbell in the meantime had settled the upper Terai for

In the 1892 settlement the rate of rent except in 6 blocks was enhanced 50 per cent. and cardamom lands were separately measured and assessed at a special rent of Rs. 10 per acre.

In 1901 lands in each block were classified as (a) cardamom lands, (b) *panikhet*, (c) *sukhakhet*, (d) waste cultivable land and the 48 blocks were classified into five groups according to their productivity and accessibility. In the 1921 settlement similar principles were followed but rates were enhanced except for cardamom lands. The table below shows the various rates fixed at these two settlements:

		<i>Sukhakhet</i> Rent per acre				Waste Rent per acre			
		1901		1921		1901		1921	
		Rs.	a.	Rs.	a.	Rs.	a.	Rs.	a.
		0	15	1	8	0	3	0	4
		0	12	1	3	0	3	0	4
		0	8	0	13	0	2	0	3
		0	7	0	11	0	2	0	3
		0	6	0	9	0	2	0	3

three years. Previous to annexation revenue was derived from a *dao* or hoe tax paid by Meches and Dhimals; from land settled with Bengalees in the Lower Terai; from grazing fees from cattle coming from adjoining districts in the early part of the year; from forest produce, excise, market dues; and from a few minor sources. There were Bengali Officers called *chaudhuris* who collected the more important of these dues, held large grants of land and exercised civil and criminal powers.

At the time of Dr. Campbell's settlement, there were 544 *jotedars* or persons with whom land had been settled. The gross revenue was then Rs. 19,507 and net Rs. 17,630. These *jotedars* renewed their *jotes* every year but in fact they had hereditary rights which could not be refused. Dr. Campbell's first settlement allowed the *chaudhuris* over 10 per cent. for collection charges.

Originally the Terai was divided into 19 *mauzas* lying in two parganas Patheorghatta and Hathighisa. These 19 *mauzas* included 384 *jotes*, 80 grants under 30-year leases and 21 blocks of land containing private and Government *hats*. This division into *mauzas* had no value and a rearrangement took place equating *mauzas* to the areas of one or more *jotes* or to one or more of the 30-year grants.

The rights of all tenants of Government in the Terai are regulated by their leases and by the two Acts which are in force in the district, namely, Act X of 1859 and Act VIII of 1879. Whereas the 30-year tea leases are transferable and heritable, these leaseholders have no right to sublet. The 20-year *jote* leases however can be sublet and are, in addition, transferable and heritable. The

only restrictions on subletting in the *jotedar's* lease are that rent may not exceed 50 per cent. of the *jotedar's* rent and the agreement with the sub-tenant must provide that he cannot sublet. *Jote* lands can only be put under tea with the Deputy Commissioner's permission and at the rate fixed for tea lands under *jotes* (Rs. 2-13 per acre). *Jotedars* in the Terai have rights to the trees on their land.

The 1898 settlement gave the following figures of tenancies in the Terai:

	Holdings No.	Acres culti- vated	Acres unculti- vated	Total acres
Tea planters ..	136	12,462	19,544	32,006
<i>Jotedars</i> ..	778	15,115	43,244	58,359
<i>Adhiars</i> under <i>jotedars</i>	1,744	5,736	257	5,993
<i>Ticcadars</i> ..	4,757	25,886	9,329	35,215
<i>Adhiars</i> under <i>ticcadars</i>	915	2,598	139	2,737
<i>Dar-ticcadars</i> ..	2,803	6,667	853	7,520
Total ..	11,133	68,464	73,366	141,830

In the 1924 settlement, 535 of the 860 *jotedars* were recorded as "under tenants" (tenure-holders) and 325 as *raiya*s. Under the 535 tenure-holder *jotedars* were recorded 5,075 *ticcadars* classed as follows:

Under tenants ..	..	..	171
Occupancy <i>raiya</i> s ..	..	..	2,252
Non-occupancy <i>raiya</i> s ..	..	..	2,629
Non-agricultural tenants ..	..	..	23
Total ..	..	..	5,075

There were altogether 6,104 *ticcadars* in this settlement against 4,757 of the 1898 settlement. *Dar-ticcadars* had increased from 2,803 to 4,672. It is believed that in spite of the term of leases prohibiting subinfeudation, this has increased considerably since the 1924 settlement. Most of the *jotedars* are Rajbanshis; there are a few Muslims, Beharis and high caste Bengalees.

Revenue-free Properties—The table shows that there are altogether 273 revenue-free estates recorded in Register B, Part I, in the Deputy Commissioner's Office, the total area of land covered by these entries being 76,636 acres or 119.74 square miles.

These properties consist mainly of lands the revenues of which were commuted under the Waste Lands Rules of the 7th May 1859 and the Fee-simple Rules of the 30th August 1862, and the 44 acres of land comprising the Central Bazar and the "Native Town" over which the proprietary rights of the Darjeeling Municipality were recognised by the Government of India in their letter No. 2289, dated 14th August 1880. The history of the rules of 1859 and 1862 is set out below:

A set of rules for the grant of waste lands in the Darjeeling territory was issued by the Board

with the approval of Government on the 7th May 1859, the most important provisions of which were that grants of waste lands should be put up to auction at an upset price of Rs. 10 per acre; that the sale at such auction should convey a free-hold title; that existing lease-hold grants might be commuted to free-hold at the option of the grantee; and that building locations might be commuted at the rate of 20 years' purchase of the annual rent. Between the introduction of these rules in 1859 and their abrogation on the introduction of the fee-simple rules in 1862, over 9,000 acres of land were sold in the hills by public auction at an average rate of about Rs. 12 per acre, while commutations of location rents under rule 10 of the Rules of the 7th of May 1859 continued down to the year 1879.

The provisions under which the lands were put up to auction were, however, much disliked; attempts were constantly made to evade them, some of which were successful, and commutation deeds were given to people who had no claims beyond having purchased the interest of a former lessee in an indefinite lease, the term of which had expired.

Dr. Campbell reported to the Board in May 1861, that he had effected a settlement of some lands with native cultivators for 10 years at an average rate of 5 annas an acre, subject to the sanction of the Board and of some lands with other persons for 10 years at 8 annas an acre with a promise that he would recommend the Board to allow the leases to be commuted at the rate of Rs. 10 an acre. The Board, however, in their letter No. 37 of the 24th September 1861, refused to assent to Dr. Campbell's proposition to allow commutations. But all the leases except three were commuted, after the introduction of the fee-simple rules of 1862, under orders of Government which allowed commutation to rent-free tenure of all farming leases given previous to the notification of the fee-simple rules of the 30th of August 1862.

The area of the lands commuted under the orders of 1862 is over 1,300 acres, which, with the area of the commutations under Rule IX of the Rules of 1859, makes a total of over 21,000 acres in the old hill territory commuted to free-hold without being put up to auction.

In 1861, Lord Canning issued a minute regarding the sale of waste lands in fee-simple, which laid down three main principles on which grants of waste lands were to be made in future. These were, first, that such lands should be granted in perpetuity as a heritable and transferable property, subject to no enhancement of land revenue; secondly, that all prospective land revenue would be redeemable at the grantee's option by a payment in full when the grant was made, or a sum might be paid as earnest at the rate of 10 per cent., the remainder being paid later; and thirdly, that there should be no condition obliging the

grantee to cultivate or clear any specific portion within any specific time. The minimum price for the fee-simple was fixed at Rs. 2-8 per acre, so that by paying 10 per cent. of this, or, 4 annas per acre, a title was obtained. This minute was followed up by the issue in 1862 of the fee-simple rules for the sale of land by auction to the highest bidder above a fixed upset price, and subsequently a large quantity of land was commuted to free-hold by special orders which allowed the commutation of all farming leases given prior to the introduction of the fee-simple rules.

Revenue-free properties held by public bodies are given in the table as being 503.30 square miles in extent (322,115.88 acres). These figures are taken from Register B II in the Deputy Commissioner's office which shows the area held by various departments. The chief areas recorded are:

	Acres
Forest Department	... 268,695.26
Cinchona Department	... 46,952.51
District Board	... 2,088.37
P. W. Department	... 1,796.64
Darjeeling Municipality	... 765.35
Darjeeling-Himalayan Railway	... 683.29
Military Department	... 558.70
Jail Department	... 231.58
Bengal and Assam Railway	... 321.26

The recorded figures need considerable revision.

The Darjeeling Improvement Fund—The Darjeeling Improvement Fund receives the income of 82 estates or tenures as shown in the table in the beginning of this section. These estates are marked in the Tauzi Roll "F" for farming and "L" for location and are dealt with in a separate register in the Deputy Commissioner's office.

The authority for the assignment is to be found in Government letter No. 1371 of the 22nd July 1864. The area covered by these estates is over 18,000 acres and the income thus assigned is Rs. 20,788.

By virtue of a Government resolution, dated 12th October 1877, the Fund also obtains an income from Government *hats* and bazars in the district amounting to approximately Rs. 184,000 per annum. To collect these bazar rents, fees and tolls, a staff is employed independent of the Khas Mahal administration but under the control and direction of the Deputy Commissioner. A large number of petty officers is required to collect small dues in places scattered throughout the district and collection expenses, including allowances and the cost of supervising staff, are heavy.

Most of the important bazars and *hats* in the district belong to Government and are controlled by the Fund. Their number is 31 and the main receipt heads in the year 1944-5 were:

- (1) Rent and cess (permanent holdings)

- (2) Conservancy and water rates
- (3) *Salami* and transfer fees
- (4) Tolls from petty vendors
- (5) Trees and fruit
- (6) Rent and cess (temporary holdings)
- (7) Interest and penalties
- (8) Miscellaneous
- (9) Slaughter house fees

The sum available for expenditure in 1944-5 including an opening balance of Rs. 148,000 was Rs. 373,400. Effective expenditure during that year was estimated to amount to Rs. 217,000 as follows:

	Rs.
Works—	
Buildings	... 20,500
Communications	... 18,000
Miscellaneous	... 8,700
Contributions	... 77,700
Establishment, travelling, etc.	... 92,000
Total	... 216,900

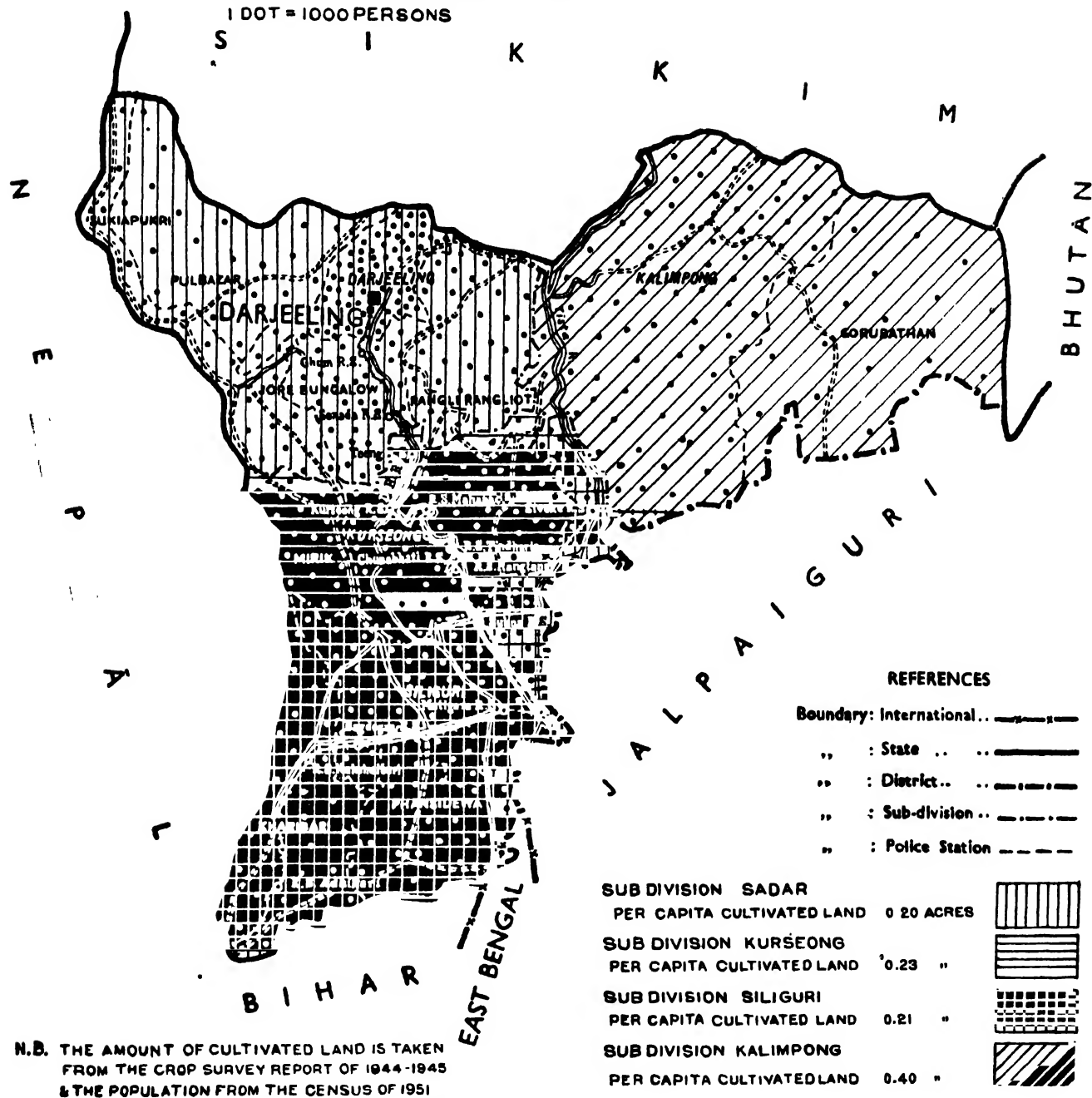
The Fund uses the staff of the District Board to carry out the works shown; for this it pays a contribution of Rs. 18,000 to the Board in addition to the contribution of Rs. 50,000 which was fixed when the District Board was established in 1922 and certain functions of the Fund were transferred to the Board. Most of the civil works undertaken are those which are considered likely to improve or maintain revenue. The administration of the Fund comes under some local criticism because expenditure in particular bazars bears little relation to the income derived from them.

The history of the Fund dates back to 1838 when the Government of India directed that the quit rents paid by settlers in the ceded portion of Darjeeling should be appropriated to a fund called the Location Fund and employed for purposes of local improvement. The rents of certain bazars built out of the Fund and of other shops erected on public lands were afterwards added. In 1854 Government decided that all proceeds from land in the ceded tract should be given up for local purposes. In 1864 the Fund was to be kept distinct from the Municipal Fund. In 1877 the principal object on which the Fund's income was spent was the maintenances of the botanical gardens at Rangiroon, of the bazars and *hats* in the Terai and of the rest bungalows on the frontier roads. In 1907 the fund was responsible for maintaining dispensaries, museums, primary education, rural water-supply, ferries, rest bungalows, veterinary staff and for making grants-in-aid to various institutions. With the establishment of the District Board in 1922, most of these responsibilities were handed over to the District Board and the Fund's main function is now to supply an income to the Board, but it also maintains most of the important *hats*, several dispensaries and rest houses.

POPULATION OF DISTRICT DARJEELING

SHOWING AMOUNT OF CULTIVATED LAND PER CAPITA .
IN EACH SUB DIVISION & POPULATION OF EACH THANA .

1 DOT = 1000 PERSONS



Scale

10 8 6 4 2 0 10 20 miles

APPENDIX I

GAZETTEER

Algarah—A bazar in Kalimpong subdivision having an improved water supply owing to the Darjeeling Improvement Fund. In the last decade a Rural Health Treatment Centre was located in this place which still continues. It is a principal market for cardamoms and in normal years used to transact business of no less than Rs. 400,000. There is a metalled road from Kalimpong to Algarah fit for light lorries. This forms part of the Kalimpong-Rishi Road and there is a Khasmahal Inspection Bungalow.

Badamtam—A bazar under the Darjeeling Improvement Fund in Darjeeling subdivision. There is a tea estate of the same name near the bazar. Badamtam is a Lepcha word, meaning "the bank of the badam bamboo". Situated on the Rangit valley it grows Pine in fair quantity and is believed to be the only locality in West Bengal where pine occurs naturally. There is a road from Badamtam to Burnesbag which is negotiable by light motor vehicles. There is a Dak Bungalow under the Darjeeling Improvement Fund at Badamtam which is 6 miles from Darjeeling on the Rangit Road.

Bagdogra—This place in Siliguri subdivision has acquired great importance as an Airport. There is a Scheduled Passenger service from Calcutta to Bagdogra run by the India Airlines. The runway is an all-weather one. There are a Rural Health Unit and a Railway Station and a Forest Range of the same name. There is a saw yard. The National Highway from Kishanganj to Siliguri passes along the Bagdogra Railway Station. The Khasmahal Department maintains a road from Bagdogra to Tirana fit for heavy motor traffic.

Bagora—This is a small village in Kurseong subdivision on the Dow Hill—Senchal Range on the Old Military Road from Pankhabari to Ghum. There is a Forest Bungalow which is about 4 miles from Ghum Railway Station and on the ridge above it. Recently a Youth Hostel has been opened in this Bungalow.

Bijanbari—One of the largest market places in Darjeeling subdivision situated west of Darjeeling town in what is called Pulbazar down in the valley at a height of about 2,000 feet. Bijanbari takes its name from the enormous traffic in potato, *churata* and honey from Nepal. There is an improved water supply and a Rural Health Unit. It is the terminus of a Ropeway Station connecting Darjeeling. Bijanbari is also a famous market for cardamoms and before the Second World War, together with Pulbazar used to transact business worth about one million rupees. It forms part of the Kurmi Estate.

Birik—This is a small forest block in the Kalimpong subdivision situated at the junction of the Rhyang Khola with the Tista. Famous for scenic beauty and contains an Inspection Bungalow belonging to the Works and Buildings Department.

Chungtong—In Lepcha the name is the arrow headed place, i.e., a site at the junction of two rivers. Chungtong is a Ropeway Station and is proposed as a hydro-electric station for the Darjeeling Municipality.

Chunabhati—A railway station in Kurseong subdivision midway between Tung and Tindharia. In Nepali it means the lime kiln. There is another Chunabhati at Kalimpong which contains a Forest Bungalow.

Constantia—The top of a hill about 2 miles south-west of Kurseong Railway Station, containing the Subdivisional Officer's Bungalow which used to be a famous hotel at the time when the Pankhabari-Ghum Old Military Road, which passes below Constantia was in operation. This place gives a very fine view of the mountains of the

Darjeeling side and the plains below showing the Mechi, the Balasan and other rivers. At one time the house was the premises of the Victoria Boys' School.

Darjeeling—Darjeeling town is the headquarters of the District and is situated in the Lower Himalayas (27° 3' N. and 88° 16' E.) at a distance of 369½ miles by the old rail route from Calcutta. The name is a corruption of Dorje-ling and means the place of the *dorje*, the mystic thunderbolt of the Lamaist religion; it was the name given to the Buddhist Monastery which stood on the top of Observatory Hill.

The town lies on a long spur projecting northwards from the Ghum-Senchal ridge. The spur rises abruptly from Ghum to the top of Katapahar (7,886 feet) and then gradually descends to 7,520 feet at Jalapahar and to 7,002 feet at the Chaurasta. It rises again to 7,163 feet at Observatory Hill just north of the Chaurasta and then divides into two, the Lebong spur and the Birch Hill (and Takvar) spur. Both these spurs descend steeply into the valley of the Rangit river flowing at a height of less than 3,000 feet above sea level. The ridge is narrow at the top and its eastern slope is very steep; the bazar and nearly all the houses have been built on the more gentle western slope.

Although the town contains a large number of cheaply constructed and unsightly buildings with little in the way of trees to screen them from view, it is located in such a position that from most points in it, views of mountains may be obtained which can scarcely be rivalled in any other part of the world. The visitor can not only view a magnificent distant landscape from the town but he will find, within its limits, parks, gardens and a museum which give him a close view of the animal and vegetable life to be found in the surrounding country and some idea of the original appearance of the spur on which the town now lies before the forest was cleared and the area built up.

The Lloyd Botanic Gardens are situated just below the Eden Sanitarium and date back to 1865 when Dr. T. Anderson started a branch of the Royal Botanic Garden, Calcutta, and a cinchona nursery at Rangiroon about 6 miles from Darjeeling. It was found to be unsuitable for the cultivation of cinchona and too far from Darjeeling for a botanic garden. Sir Ashley Eden, the Lieutenant-Governor, decided to develop a garden close to Darjeeling and Mr. William Lloyd in 1878 presented a suitable plot of land, accessible and with an excellent aspect. The gardens have been named after him in commemoration of his liberality.

The land was cleared and laid out under the direction of Sir George King, then Superintendent of the Royal Botanic Garden, Calcutta. He was assisted by Mr. A. T. Jeffery of the Cinchona plantations who became Curator of the new garden. He was in 1886 succeeded by Mr. Kennedy of the Cinchona plantations and in his time experiments were made in the garden with the introduction of potatoes. These were unsuccessful as were Mr. Kennedy's attempts to plant up the town with trees in replacement of those destroyed or damaged by cattle and the local residents.

In 1898 the municipal garden was taken out of the supervision of the Curator and about this time steps were taken to bring together in the garden complete collections of Eastern Himalaya species and to add some Western Himalaya and other temperate species. In 1902 Mr. Cave was appointed Curator in place of Mr. Kennedy. The grounds had contained a museum but this was now transferred to a site outside the garden.

The garden, since 1910, has been used for the collection and distribution of seeds, plants and bulbs and for experiments on the adaptability of exotics. Various investigations of economic importance are conducted on behalf of

APPENDIX I—*contd.*

departments, institutions and individuals and the garden exchanges seeds and plants all over the world and supplies specimens for herbarium, museum and class demonstration to Universities and Colleges in India and abroad.

The area of the garden is forty acres and is divided into three main sections: (1) an upper indigenous section, (2) a lower exotic section containing many species from temperate parts of the world, certain of which have been acclimatised in various provinces in India since their introduction to this garden and (3) a miscellaneous section containing the predominating species of plants of the Eastern Himalayas and certain species of the hill plants of North-Western India, Eastern India, Burma and the Nilgiris. In the Sir John Anderson Rock Garden are grown alpine and other dwarf Himalayan species of rare beauty. The garden has a permanent stock of just over 1,500 plants under cultivation; these represent the temperate floras of thirteen different countries of the world.

The plants grown in the Lloyd Botanic Garden, Darjeeling, have been described in a publication entitled "Plants of the Lloyd Botanic Garden, Darjeeling" written by Dr. K. Biswas, M.A., D.Sc. (Edin.), F.R.S.E., Superintendent, Royal Botanic Garden, Calcutta.

Botanical and other researches are also carried out at the Mayapuri laboratory of the Bose Institute. The property (Mayapuri and Brookside) is situated on the McIntosh Road and was acquired by the late Sir Jagadish Bose in 1920; a laboratory was later established reprinted as an appendix in this volume.

The Natural History Museum is housed in a building just below the Victoria Park completed in 1915: before that, it was located in a building in the Botanic Gardens. The Museum contains well-arranged and comprehensive collections of the mammals, birds, fishes, reptiles, leeches, butterflies and dragon flies found in the district and neighbouring areas as well as some specimens from other parts of India and the world. It has a small library. The Museum building is the property of Government and since 1923 it has been managed by the Darjeeling Natural History Society and the Curator Mr. C. M. Inglis who worked until 1948. The society publishes a journal quarterly. The income of the Museum since 1923 ranged from Rs. 9,000 and Rs. 10,000 per annum, the main items of receipt being grants from Government, the Darjeeling Improvement Fund and the Municipality.

In contrast to the trim lawns of the Botanic Gardens is the natural beauty of the woods situated on Birch Hill, the ridge running north of the town. The woods are managed by the Forest Department as a reserved forest and are maintained as a public park. With their wealth of vegetation, shady walks and old moss-covered and creeper-bound trees, they show what Darjeeling was like when it was first discovered. This park and the small areas of forest on Jalapahar and Observatory Hill are the only parts of the town where the fine forests which once covered the hill-sides entirely have not been ruthlessly felled by builders or owners. Most of the few forest trees still surviving in the town have been disfigured by lopping for firewood or fodder. There are a few open spaces in the town maintained by the Municipality as pleasure grounds among which can be mentioned Observatory Hill, the Victoria Park, the Donovan Park and the Brabourne Park—the last opened in 1938 as a memorial to the late Lord Brabourne, a Governor of Bengal.

From the built-up area the Calcutta road on the east of the Jalapahar ridge and the Auckland Road on the west are bridle paths which lead to Ghum and offer to the user delightful views of mountain scenery. Beyond Ghum various roads lead up to Sanchal (8,163 feet) and Tiger Hill (8,515 feet) 6 miles from Darjeeling through fine forests of oak, magnolia and rhododendron. The pink flowering magnolia is only found in this locality. There is a golf course between Sanchal and Tiger Hill and from the summits of both, when the weather is clear, can be obtained a fine view of the plains of Bengal, of the mountain spurs sinking to the plains and of the courses of

several great rivers, the Tista, the Balasan, the Mahanadi and the Mechi. To the north is a panorama probably unsurpassed in the world. In the foreground is the great valley of the Rangnu 4 miles across and 4,000 feet deep, formed, on the one side, by the Darjeeling ridge bare of forest and scarred by landslips and, on the other, by the forest-clad Takdah ridge. Further away is the Rangit valley and beyond it in the middle distance stands prominent the cone-shaped peak of Tendong (8,676 feet). According to Lepcha tradition, when Lepchas were the only inhabitants, there was a great flood. The few survivors of the flood used the summit as a point of refuge as Mount Ararat was said to have been used. Behind Tendong is the higher mountain of Mainom over 10,000 feet high with the precipice on the eastern side of its summit clearly visible. Beyond is a line of snow mountains stretching across the entire northern horizon. Dominating all in the centre is Kinchinjunga 45 miles away and 28,146 feet above mean sea-level: it is flanked on the west by Kabru (24,015 feet) and Janu (25,300 feet) and on the east by the sharp conical peaks of Pandim (22,020 feet) and Narsingh (18,145 feet). To the north-east, can be seen most of the high peaks of North Sikkim, Simvo (22,369 feet), Siniolchu (22,600 feet), Lama Anden (19,250 feet), Chumimomo (22,430 feet), Kanchenjau 69 miles away with a flat top capped with ice 22,700 feet high and Pauhunri (23,180 feet). Further still to the east can be seen the ridge over 14,000 feet high, the boundary between Sikkim and Tibet, extending to the mountain Gipmochi (14,518 feet) which is the trijunction of the boundaries of Sikkim, Bhutan and Tibet. The two passes, the Jelap La and the Nathu La, over which trade from India is carried to Tibet can be picked out on the sky line and, appearing over the ridge and situated in Tibet 40 miles beyond it, can be seen the beautiful mountain of Chomolhari (23,930 feet). On the other side of Kinchinjunga west of it and at a distance of over 100 miles from where the observer stands, he can see three snowy peaks above the Singalila ridge which runs down from Kinchinjunga and Kabru to form the boundary first between Nepal and Sikkim and then between Nepal and Darjeeling district. These three peaks seem small in comparison with the nearer Sikkim mountain giants but the middle one, by no means the most impressive of the three in appearance, is Mount Everest (29,002 feet), the highest mountain in the world.

From Darjeeling itself the northward view is almost as impressive but the Everest group and Chomolhari are hidden by the boundary ridges on the north-east and north-west horizons. To the south Darjeeling gets no view of the plains owing to the higher ground at Ghum intervening. There is no lack of variety in the views even when the high snows are not visible. The play of light and shade and ever-changing cloud and mist over the valleys and tea gardens in the foreground are almost as attractive as the magnificent panorama that becomes visible when the sky clears.

The walker who cares to leave the town will find many delightful roads and paths in the forests which cover the Sanchal mountain, the Takdah and Lebong ridges and that between Ghum and the Nepal frontier. For those who have more time, descends to the valleys below through tea gardens and forests offer delightful day expeditions when the weather is favourable. Those who wish to go further will find Darjeeling a good starting point for trips of a week or more along the Singalila ridge or into Sikkim and a convenient centre for the collection of supplies and transport for these expeditions. It is from Darjeeling that porters are recruited by the various mountaineering expeditions which have attempted to scale the high peaks of the Himalayas.

In normal times, Darjeeling has two seasons which are popular with visitors, the spring and the autumn. For most visitors the winter is too cold and the monsoon months too wet. The hotel and boarding house business thus tends to be limited to two somewhat short seasons

APPENDIX I—contd.

and many establishments have in consequence a precarious and transitory existence. Among the oldest are the Eden Sanitarium, the Lewis Jubilee Sanitarium, the Mount Everest Hotel, the Bellevue Hotel and, until it was more or less destroyed in the 1934 earthquake, the Rockville Hotel. The Darjeeling Planters' Club provides residential and club life for Europeans and the Darjeeling Gymkhana Club indoor and outdoor recreation for members of all communities. The latter has an excellent skating rink, half a dozen tennis courts, two squash rackets courts, a ball room and a billiards room. It also provides golf at Senchal and organises race meetings in the spring and autumn at Lebong.

The town is fairly well provided with means of recreation. A number of open spaces and playing grounds belonging to schools, colleges, the Police and the Military are on occasions available for use by the public. The town has two public cinema halls (one in the Town Hall) and theatrical performances are occasionally given in them as well as in the Nripendra Narayan Hindu Public Hall. Restaurants, tea shops and eating houses abound and porters, rickshaws and ponies can readily be hired, at rates laid down by the Municipality, by visitors who require them. Motor vehicles can only use a few roads in the town but taxis can be obtained at the Bazar and the stand near the Town Hall for journeys to Lebong, Ghum and other parts of the district.

Darjeeling has considerable importance as a centre of district and provincial administration. Office and residential accommodation was built for officers of the Secretariat who used to come to Darjeeling when the headquarters of the Provincial Government moved up here. The Provincial Forest Department offices were until recently located in Darjeeling. In addition to the usual offices connected with the administration of a district, the office of the Superintending Engineer of the Northern Circle of the Communications and Works Department were located in the town. Few of the buildings occupied by the above departments and officers are in any way impressive: the most substantially built and imposing in appearance probably being the newly constructed Police Buildings near the market square. The Post and Telegraph Office is also a well-built stone building: close to it is the Imperial Bank building and beyond that the Town Hall where Municipal meetings and office business are conducted and where the public hall is let out for use as a cinema. The building was completed in 1921 at a cost of Rs. 276,000 and has a well-proportioned clock tower, the whole forming perhaps one of the most satisfying of the public buildings in the town. The Victoria Hospital buildings are also well-built of stone and concrete.

Many of the schools in the town have large and well-constructed buildings of architectural merit. And in the cantonments there are a number of strongly constructed but severe looking buildings.

The town contains a number of places of worship for the various communities living in it. Formerly Observatory Hill was crowned by a Buddhist monastery but it had been destroyed by the Gurkhas when they overran the country in the early part of the 19th century. It was rebuilt on its former site but was then removed to Bhutia Basti lower down the hillside. This was destroyed by the 1934 earthquake and the present fine structure was then built as a gift of His Highness Sir Tashi Namgyal, K.C.S.I., K.C.I.E., the Maharaja of Sikkim. Management vests in the leading Buddhist monastery which is at Ghum where worship is conducted by the Yellow Sect of Lamaism. It is famous for its image of the coming Maitreya Buddha and for the Lama dances that are held there. The monastery buildings at Ghum were damaged in the 1934 earthquake but were restored by the munificence of the late Sardar Bahadur S. W. Laden Ia, C.B.E. Additions were the gift of Messrs. Sharab Lama and Sons

of Darjeeling. The Nepali Tamang Gumpa is a monastery for Nepali Buddhists. It was built in 1926 and is situated below the Waddell Road in the Judge Bazar.

The most noteworthy Hindu temple in the town is the Dhirdham temple built in the year 1938 by His Highness the Maharaja Sir Joodha Shamshero Jung Bahadur Rana, Prime Minister of Nepal, and opened by his son His Excellency Commanding General Bahadur Shumsher Jung Bahadur in May 1939. It is near the Railway Station and is visited for worship by all sections of Hindus in Darjeeling. It is the only shrine of its kind in India and is unique for the beauty of its architecture in the Nepali style. Contributions from many Hindus including one of Rs. 1,000 from Maharaja Sir Nripendra Narayan of Cooch Behar and a grant of land by the Municipality in 1890 enabled the Bengali Hindus of Darjeeling to construct buildings for religious and social purposes. One of these, the Nripendra Narayan Public Hall, is used as a common meeting place for Hindus and for *puya* celebrations. The Gopal Mandir, a temple used exclusively for worship, is located on the premises where there is also a public library. Elsewhere in the town Rai Parasuram Agarwalla Bahadur, the senior partner of Messrs. Mohanlal Shewlal, presented a large dharamsala which is open to all Hindu communities.

Christian places of worship are numerous. There are three Anglican Churches of which St. Andrew's Church, Darjeeling, is the oldest ecclesiastical building in the district. Its foundation stone was laid on St. Andrew's Day, 1843, and the Church was then built at a cost of Rs. 9,000. It has accommodation for 150 persons and the Chaplain of Berhampur used to come to Darjeeling for two periods of six weeks to minister to residents. Later the church was struck by lightning, was rebuilt in 1870 and was consecrated by Bishop Milman in 1873. A clock was added to the tower at the time of rebuilding and by various subsequent additions the accommodation was increased to 450. The walls have a number of inlaid tablets to the memory of some of the early residents and settlers, chief among them being Lieutenant-General Lloyd, the discoverer of Darjeeling.

St. Luke's Church, Jalapahar, is the second church built in that cantonment. The first was built in 1867 but was later dismantled and replaced by the present building in a more central position. St. George's Church, Lebong, was built in 1908 and accommodated 80 people. It was damaged in the 1934 earthquake and had to be abandoned. Worship now takes place in a temporary building loaned from the Military authorities. St. Paul's School has an interesting chapel built in the modern style on a prominent site and St. Michael's School (now Darjeeling Government College) also has a beautiful chapel.

The churches of the Roman Catholic Church had their origin in the communities which grew up around two schools. The Church of St. Francis of Assisi was a wooden one erected in 1885 next to the Capuchin seminary and an Indian Chapel was built in 1889 next to the North Point College. As the community in the town increased, a larger church, that of the Immaculate Conception, was built in 1893 contiguous to the Loreto Convent and the wooden church was transferred to Jalapahar. In 1908 a church dedicated to St. Michael was erected at Lebong. The Church of Scotland has St. Columba's Church in Darjeeling and took over the Union Church in 1935.

The Muslim community has three mosques in the town maintained by the Anjuman Islamia, Darjeeling. The Juma Masjid on the Botanical Gardens Road was built at a cost of Rs. 15,000 and accommodates 1,000 worshippers. The Chhoti Masjid in the Butcher Basti was reconstructed at a cost of Rs. 12,000 and accommodates 400. The Anjuman also maintains a two-storied *musafirkhana* built at a cost of Rs. 15,000 to accommodate visitors to Darjeeling irrespective of creed. It contains 21 rooms out of which 5 are family suites.

APPENDIX I—*contd.*

The Brahmo community has a mandir near the Victoria Hospital. As far as is known, other religious communities have no special place of worship of importance. In the outskirts of the town there are burial grounds and burning ghats for the various communities living in it.

One of the features of the town is the market square situated on a levelled and extensive piece of ground in the middle of the town and surrounded by substantial buildings erected by the Municipality. The square presents an animated scene each day and particularly on Sundays, the holiday and bazar day for all tea gardens. The market is crowded with purchasers from the gardens and with sellers and visitors of many races. Nepalis predominate but Tibetans and Bhutias from the hills are conspicuous, in striking contrast to Marwaris and other traders from the plains.

The town is well provided with roads and paths, many surfaced with tar macadam and most well-fenced and kept in good order. A few of the larger roadways are open to motor traffic but many other are unsuitable for various reasons for use by vehicles other than rickshaws or perambulators. Few of the residential buildings deserve mention. The chief is that of the Governor of West Bengal. In 1879 an old cottage on the ridge overlooking Birch Hill was replaced by a house for the summer residence of the Lieutenant-Governor. The estate, which was first called The Shrubbery, was gradually improved and buildings added included a Durbar Hall. In the 1934 earthquake the main building was so seriously damaged that it was found necessary to rebuild completely. The present residence with its blue dome and white walls is a conspicuous landmark on the Birch Hill ridge.

His Highness the Maharaja Bhup Bahadur of Cooch Behar has a Darjeeling residence in extensive grounds at Colinton above the Auckland Road and to the south of Darjeeling. He also owns a property consisting of 17 locations within the Municipality and covering an area of about 75 acres.

One of these is leased from Government for a 99-year period. All the other are held on permanent leases, 9 of which are revenue-free.

The property includes about 40 higher class houses in the best residential locality which are let out to tenants. The unbuilt-up portion of the property has been leased on long term for residential building. Part of the property known as the Toong Soong Basti has been leased out for the smaller class of residential building. The average gross annual income of the Estate from both houses and sites is about Rs. 71,000.

Darjeeling has greatly benefited from the interest which has been shown by the Maharaja and members of the ruling family. Not only have they extensive property in Darjeeling but the Rulers of Cooch Behar have made frequent visits, sometimes prolonged, and have often taken a prominent part in the summer life of the town. Their generosity has been notable and among their many benefactions may be mentioned of following:

- (1) Gift of Bryngwyn and houses thereon valued at Rs. 50,000 to the Lewis Jubilee Sanatorium in 1887. A contribution of Rs. 400 annually is made for the maintenance of two free beds in this institution.
- (2) Donation of Rs. 125,000 to the Darjeeling Municipality for the construction of the Town Hall.
- (3) Donation of two plots of land to the Darjeeling Municipality for water reservoirs.
- (4) Donation to the Maharani School to enable it to start and an annual contribution of Rs. 1,200 up to 1932-3, thereafter of Rs. 600.
- (5) Donation to the Gymkhana Club for the building of squash courts and for other purposes; presentation of cups for racing and the Flower Show.

- (6) Grant of land to the Forest Department for replantation in 1898.
- (7) Sale of land to the Municipality at a concession price for the laying out of the Brabourne Park.

Rose Bank below the Cart Road is the Darjeeling house of the Maharajadhiraja Bahadur of Burdwan, another distinguished property owner in the town and district. About 1850 the Maharaja acquired properties in the stations of Darjeeling and Kurseong, then comparatively undeveloped. He used to travel up from Burdwan *via* Purnea, Bhagalpur and Titaliya by palanquin and with a large retinue. He built several rest houses on this route to make the journey more comfortable. Additions were made by him to the properties originally purchased and now the estates in Darjeeling and Kurseong are about 1,600 acres in extent and consist of forests, tea gardens, residential houses, shops, bazars and agricultural lands. Some are revenue-free and on the rest the annual revenue payable to Government is Rs. 2,682. Maharajas of Burdwan have always associated themselves with local social, religious and educational activities and have made regular grants in support of a number of institutions. On occasions they have shown their interest by free gifts of land. The present Maharajadhiraja Bahadur has been the president of the Sree Gorkha Duksha Niwarak Sammelan from its inception.

Dow Hill—Dow Hill is a ridge which starts from Manibhanjan in Darjeeling subdivision and undulating eastwards passes through Ghum, Sanchal and Tiger Hill, turn southward and gradually descends to Mahaldiram, and Dow Hill above Kurseong town. It contains several springs, which supply water through pipes to Kurseong town. There are a Forest School and a colony of the Forest Department, the Victoria Boys' School and the Dow Hill Girls' School and a large T. B. Sanatorium called the S. B. Dey Sanatorium. The Forest School was opened in 1907 and is primarily intended for the instruction in practical forest work of Forest Officers below the rank of Forest Ranger. Dow Hill was an important point on the Old Military Road from Pankhabari to Ghum and is served by roads. It contains a Forest Bungalow.

Gayabari—A Railway Station on the Darjeeling-Himalayan Railway between Tindharia and Kurseong.

Ghum—A Railway Station in Jore Bungalow police-station about 7,400 feet above sea level midway between Sonada Railway Station and Darjeeling. It contains a charitable dispensary and receives its water supply from the Darjeeling water supply system. Also contains a veterinary dispensary. There is a recruiting depot for Gurkhas both for the Indian Army and the British Army. Ghum is famous for the manufacture of *kukris* and as a centre of trade for potatoes, oranges, cardamoms and cloth and before the war used to transact business worth about a million rupees. On the top of Ghum is Tiger Hill. Keventer's Dairy Farm and the Sanchal lake. There is a famous Buddhist Monastery. It forms an important junction for roads leading to Darjeeling, to Kurseong, to Sukhiapokri and to Kalimpong *via* Peshok.

Gjellekhola—Formerly a Railway Station on the Siliguri-Kalimpong Railway line of the Darjeeling-Himalayan Railway. It is an important trade centre and the import and export trade of Kalimpong passes through this bazar. The chief articles of trade are oranges, apples, wool and cardamom and other trade articles from Sikkim, Tibet and Bhutan.

Jalapahar—This is a cantonment of the West Bengal Sub-Area Command. It also contains the St. Paul's School. Adjacent to Jalapahar is Katapahar where there is a British Gurkha Recruiting Depot.

Kalimpong—Kalimpong is the headquarters town of the subdivision of the same name, which is the area taken from Bhutan at the conclusion of the war of 1864-5. The

APPENDIX I—*contd.*

bazar is 32 miles from Darjeeling by the Peshok Road and twelve miles from Giellekhol, the terminus of the Darjeeling-Himalayan Railway in the Tista Valley until 1950. It is also the terminus of the mule trade route from Tibet into India via the Jalap La which is about 65 miles away. The Sikkim frontier on this route is about 16 miles from Kalimpong. The bazar is situated on a saddle 3,933 feet above sea level flanked on either side by higher ground—on the south by the hill of Durbindara about 4,500 feet high and on the north-east by the Deolo Mountain 5,590 feet above sea level.

The prospect from many parts of the town is a magnificent one, although from nowhere is it quite so remarkable as the view from Darjeeling. Perhaps the best view-point is the summit of Durbindara. From here the northward expanse of snow mountains appears above the top of nearer mountains due north of Kalimpong. Kabru, Pandim and Narshingh are seen more obliquely than from Darjeeling, are more distant and therefore appear smaller. On the other hand peaks to the north-east are closer to Kalimpong and the eye is not distracted by mountains in the middle distance as it is when gazing in a more northerly direction. Sinvo, Simolchu and the other giants of north Sikkim therefore show up prominently. Westward one can look up the Rangit valley winding among mountains and flanked on the south by the Senechal mass. Below the hill one is standing on and west of it, runs the Tista in a deep gorge past Senechal and Sittong and, looking south-west, one can see the junction of the Rhyang and the Tista and the Rhyang Railway Station and ropeway terminus at the bottom of the valley. Again to the north and north-east, the Tista lies deep in its gorge and to the east lies ridge after ridge covered in forest and cultivation across the Rilli valley. In that direction can be seen the highest mountain in the subdivision, the Rishila 10,500 feet high.

The town has three distinct parts. First the Mission and the St. Andrew's Homes area on the lower slopes of Deolo down to the Rishi Road and the Bazar proper. This first area consists for the most part of scattered well-constructed buildings some of which lie hidden in well-wooded hillside. The second area is the bazar, closely built up and mostly a strip development on the side of the Rishi Road, the eastern end occupied mainly by accommodation for the wool trade and the mules and muletters engaged in it. The western end on the saddle serves more the needs of visitors from Bengal and the local administration. The third part of Kalimpong lies on the slopes of the hill culminating in Durbindara and is known as the Development Area. It is a residential estate developed by Government. Where development has taken place, better class buildings are seen well spaced amid trees and pleasant gardens. The undeveloped portion, more than half the total area at the time of writing, is less pleasing. Some plots are under excavation or are being prepared for building in such a condition that their appearance is unsightly. The majority, bare of trees and under temporary cultivation, create an uninteresting landscape.

Kalimpong offers to visitors a quieter type of attraction than either Darjeeling or Kurseong. There is no club or golf and little tennis. Walking is pleasant but few paths and roads seem to have been specially designed to be attractive to visitors. For visitors there are hotels in the Development Area where usually also houses can be rented for the season. There is a cinema hall in the town but it is evident to the visitor that the pleasure that he will get from Kalimpong is more than that to be found in a small country town and less than that of a town resort.

The town has developed rapidly within the last thirty years. Its importance as the terminus of the trade route to Tibet has been enhanced by improvement of communications and from the original Mission Settlement has developed the large educational estate of the Homes. These give the town unique features. Visitors find pleasure in visiting the Homes and walking through the bazar to study the Chinese shops, the eating houses and

the hotel accommodation used by Tibetan and Chinese traders and muletters: and to enjoy the novel spectacle of streets used by many types from Central Asia and by droves of mules aimlessly wandering in search of grazing or water.

Kalimpong has some importance as the administrative headquarters of the subdivision and in the town is located the office of the District Agricultural Officer.

The town has a number of churches and other impressive buildings. Apart from the residential buildings of the Homes, the Mission and the Development areas, there is the imposing residence of the Tibetan Trade Agent in the Homes area and on the side of the Rishi Road, the residence of the Raja Sonam Tobgye Dorji Deb Zimpan of Bhutan, who is Agent in British India of the Bhutan Government. In this house rested the Dalai Lama when he arrived from Tibet in 1919. There is a Buddhist monastery in the bazar as well as large substantially constructed wool godowns. There are also well constructed administration buildings noteworthy among which is the office of the Subdivisional Officer built in 1939 on a prominent site in replacement of a building which had been destroyed by storm and earthquake.

Kalimpong is well provided with places of worship. The Buddhist monastery has been mentioned above. There is also a Hindu temple and a mosque. The Church of Scotland has a fine Gothic Church which was erected in the Mission area above the bazar in memory of the Revd. W. MacFarlane, the pioneer missionary of the Church of Scotland in the district, who died here in 1887. In the Homes estate can be seen the graceful chapel built in more recent times in memory of Mrs. Graham, the wife of Dr. Graham, the founder of the Homes.

The three hill towns are all important in varying degree as centres of visitor traffic, of educational activity, of trade and communications and of local and provincial administration. Details will be found in the Introductory Essay dealing specifically with those matters. Description in this Appendix has been confined mainly to matters of general interest to the visitor.

The Kalimpong urban or semi-urban area falls into three distinct parts. First there is the Mission and Homes area on the high ground to the north-east of the saddle in the centre of the bazar. Next is the Bazar area, known as the Darjeeling Improvement Fund Bazar extending from the saddle along the Rishi Road for two of three miles. Last is the Development area. The areas have one common water-supply which is operated by the Public Health Department. The water supplied to the Homes and Mission area is mainly covered by a free allowance of 3,380,000 gallons per annum: that to the Bazar area is paid for by rates levied by the Darjeeling Improvement Fund: and that to the Development area is paid for by charges levied by the Superintendent in accordance with the terms of leases. A few free hydrants are provided in the Bazar area with lengths of hose kept ready to deal with fires.

All houses in the Development area built on leased land are required to have water-borne sanitation and pay rates for water connections. A small scavenging staff is required in this area and is paid for by rate. The Mission and Homes area has water-borne sanitation for certain houses and its own arrangements for scavenging and dumping refuse within the area. The Darjeeling Improvement Fund Bazar has a number of water cleansed public conveniences and most of the houses in it have water connections and some water-borne sanitation. For sewage not entirely water-borne, disposal is by transmission to a septic tank $\frac{1}{2}$ mile below bazar. Bazar refuse is also dumped about $\frac{1}{2}$ mile below the bazar. A water-rate is levied on all houses in the bazar whether they have water-connection or not. A Sanitary Inspector with 25 sweepers is in charge of the bazar sanitation under the Darjeeling Improvement Fund and a District

APPENDIX I—*contd.*

Board Overseer superintends the sewerage, latrine and septic tank installations. A separate conservancy rate is levied in the Bazar area.

In Kalimpong, at the 11th mile on the Rishi Road, is a mule camping ground and sheds where mules can be stabled. There are also private stables but stabling for mules and control of the animals is far from successful with the result that flies are very prevalent to the detriment of public health.

Building regulation is administered in the Development area with relatively satisfactory results by the Superintendent assisted by an advisory committee. In the past, there has not been the same success attending building control in the Bazar area where congestion and insanitary construction are in places conspicuous. An advisory committee under the Subdivisional Officer now deals with the regulation of building in the bazar.

Electricity is provided by a licensed company. House connections are provided in all three areas but street lighting only in the Bazar area where it is paid for by the levy of a rate. Street lighting has been extended to the Development area.

A municipality extending over the three areas has been established in 1945.

Kurseong—Kurseong town is the headquarters of the subdivision of that name and is situated on the main road and railway from Siliguri to Darjeeling at a height of 4,860 feet above sea-level. It is 20 miles by road from Darjeeling. According to the 1951 Census, it has a winter population of 11,719, or if neighbouring school areas are added, of nearly 12,000. It is a summer resort and in spring, summer and autumn the population is much higher, the number of visitors varying considerably from year to year. It is not so popular as Darjeeling but many like it who find Darjeeling too high, too cold or too expensive. There are hotels and boarding houses as well as many private houses whose owners occupy them when they can get away from the heat and discomfort of the plains. The Maharajahadhiraja of Burdwan owns considerable landed property in the Kurseong town. Although Kurseong is lower than Darjeeling it has a heavier rainfall (165 inches annually) but does not suffer so much as Darjeeling from cloud and mist.

Kurseong is situated on a spur taking off from the long ridge running south from Sanchal. It has no northward panorama of snows like Darjeeling as the Ghum ridge limits the view to the north allowing only the peaks of Kinchinjunga to be seen through a gap between Ghum and Sanchal. The view northward however is far from being devoid of interest. The Nagri spur, starting from Jorpokri and stretching down to the Balasan, is particularly picturesque and other hillsides covered with forests, tea gardens and factories. But to many, the real charm of Kurseong is the view to the south. On a clear day, standing on the Eagle's Crag or indeed on almost any point on the ridge running west from the town towards Constantia, the spectator commands a wonderful view of the plains of India, reaching to a distant horizon 100 miles away. At his feet, the hills fall away abruptly to ground about 400 feet or less above sea-level and there cease altogether. Southward is nothing but a vast plain in striking contrast to the jumble of hill and valley behind and to the spurs jutting out on either side of the spectator.

South-east can be seen the Tista which comes from the snows of north Sikkim, flowing through dense forest at the base of the hills and widening into broader reaches as it nears Jalpaiguri. West of it is the Mahanadi which flows past Siliguri just discernible amid trees. Immediately below Kurseong and west of it, the Balasan emerges from the hills and, after forking into two channels, joins the Mahanadi west of Siliguri to flow ultimately into the Ganges. Still further to the west can be seen the outlying hills of Panighata and Lohargarh

and beyond them the Mechi river, the boundary between the district and Nepal. Beyond the Mechi and in the plains can be seen the Morung forests and other rivers flowing through Nepal territory.

Few buildings in Kurseong are constructed substantially and far too many are insanitary, ramshackle and untidy. The schools have the best buildings and there are some excellent private residences. Although the town is itself not imposing there are attractive walks in the immediate neighbourhood. Above Kurseong are the roads to Dow Hill where will be found the old military road to Darjeeling and other paths through the forest. One track leads down from the Forest school to the Cart Road below Gidarpahar and from Gidarpahar a District Board bridle path leads down the ridge to Gayabari through tea gardens with remarkable views on either side. Other bridle roads and paths lead down from Kurseong to the plains, the one taking off below Constantia to Pankhabari being the old military road used before the Cart Road was completed on its present alignment.

Kurseong is not only important as a tourist centre and as the administrative headquarters of the Subdivisional administration but it is, like Darjeeling, a centre of educational activity. There are on Dow Hill two Government Schools for children and a Government Forest School and there are many other schools on the slopes above the town. Kurseong has a club and a cinema hall. It is the headquarters of the Darjeeling-Himalayan Railway administration and the Assam Railway maintains rest quarters here for its employees.

The Anglican church of Christ Church, Kurseong, was built in 1870 and consecrated by Bishop Milman six years later. There is also a chapel for the two schools at Dow Hill. The churches here are St. John's Church built in 1891 and St. Paul's Church built in 1904.

Latpanchor—Situated in Kurseong subdivision on the east of Mahaldiram Range it is one of the four Cinchona Plantations of the Government. Contains a Forest Bungalow.

Lebong—Commandment of the West Bengal Sub-Area Command on the North-East of Darjeeling town. It has a power station. Lebong in Lepcha means "the tongue like spur".

Lepchajagat—This is a place in Jore Bungalow police-station. In Lepcha the name means "the toll bar on imports from Nepal".

Mangpu—Situated in Kurseong subdivision it is the biggest Cinchona Plantation of West Bengal. An account of the Mangpu Plantation will be found in the section of Cinchona.

Manibhanjan—In Nepali it means "the dip between hills near the Mani or top". This is the bazar from which the journey to Tonglu, Sandakpur and Phalut is commenced.

Matigara—In Nepali it means the "mud house". It contains a bazar under the Darjeeling Improvement Fund which holds two weekly *hats*, perhaps the biggest in the Terai for the trade of rice, vegetables, sheep, goats and cattle.

Naxalbari—It is a bazar under the Darjeeling Improvement Fund and contains a District Board Dak Bungalow. It holds two weekly *hats* which are next in importance to Matigara.

Panighata—In Nepali the name means "water mill". It contains a bazar and a tea estate.

Pankhabari—This is at the foothills of Kurseong subdivision and contains a Khasmahal Bungalow, a Veterinary Dispensary and a Rural Treatment Centre. Pankhabari was once an important halting place before the Railways were built.

APPENDIX I—contd.

Pedong—This is a Khasmahal block in Kalimpong sub-division. It contains a Bungalow belonging to the Central Public Works Department, a Dispensary. In Tibetan the name means "the halting place at the Po or incense tree".

Phalut—In Lepcha it is Faklut or the peeled summit of mountain. It contains a Bungalow maintained by the Darjeeling Improvement Fund. It is very nearly 12,000 feet and is the boundary point between West Bengal and Nepal. It stands between two peaks on the same ridge Sandakpur and Singalila.

Rammam—In Lepcha it means Ra surging advance from Mong a lake with demon's name. It contains a Forest Bungalow and is a beautiful place.

Rangiroon—In Lepcha it means the turning of the great river, i.e., the place to which the great Tista flood reached. Contains a Forest Bungalow.

Rangit—In Nepali it is Rangnyit—i.e., two extended waters, the Great and Little Rangit rivers.

Rangli Rangliot—In Lepcha it means the place of the receding waters, i.e., from which the Great Tista flood receded. It contains a police-station and a bazar.

Senchal—In Lepcha it means the damp misty hill. It contains a Darjeeling Improvement Fund Bungalow and a catchment reservoir of the Darjeeling Municipality.

Siliguri—The headquarters of the Siliguri sub-division and a big Railway junction of the Assam Railway, the Darjeeling Railway and the Railway going into East Bengal *via* Jalpaiguri. In 1950 it was declared a Municipality and contains important Railway offices.

Takdah—This is a Khasmahal block and contains a Forest Range. There is a Bungalow belonging to the Forest Department and a bazar. The former Takdah cantonment is now a residential area.

Tindharia—Tindharia is on the 19th mile on the road between Siliguri and Kurseong and contains the workshop of the Darjeeling Railway. It also contains a Hospital and a bazar.

Tista—In Nepali it is Trisrota the three courses. Formerly the river divided into three on emerging into the plains. An account of the river will be found in the second section of the Introduction and in the Jalpaiguri Handbook.

STATISTICS OF TEA

HILLS

Name of Tea Estate	Regd. No.	Area in acres		Figures represent lbs.	
		Planted tea area at 31-3-1952	Tea area lying fallow at 31-3-1951	Quantity of made tea produced in calendar year 1952	
				Black	Green
1	2	3	4	5	6
Moondakoteo	A 24	1,260.08	25.00	434,706	
Nagri	A 25	745.43	13.00	394,400	
Chongtong	A 26	1,043.55	21.45	441,280	
Dooteriah	A 28	1,280.12	27.92	409,741	
Kaby Vally	A 29	653.45	5.30	266,244	
Phuguri	A 30	585.39	9.38	234,400	
Goomtea	2,157	344.59	..	143,571	
Jungpara	2,158	201.25	..	97,020	
Marybong	B 39	670.08	..	177,541	
Poobong	B 41	500.43	..	178,969	
Seeyok	B 42	384.29	..	142,307	
Okayti	B 43	505.00	..	170,805	
Thuerbo	B 44	1,200.00	..	404,957	
Arya	2,192	239.00	..	79,158	
Rangli Rangliot	B 46	341.00	..	196,350	
Risheehat	2,194	346.46	..	116,569	
Fagu	B 82	940.00	15.00	651,588	
Chamong	D 65	400.80	6.72	126,458	
Glenburn	D 66	692.99	..	360,544	
Lingia	D 67	358.99	..	175,020	
Nagri Farm	D 69	672.88	..	405,130	
Soom	D 70	538.25	..	279,523	
Tukvar	D 71	1,705.00	..	663,344	
Ambootia	F 8/1	758.02	..	335,394	
Ging	F 8/2	541.10	..	269,243	5,306
Phoobsering	F 8/3	361.96	0.58	207,470	2,790
Tukdah	F 8/4	443.63	..	222,045	244
Rungneet	F 8/5	185.86	..	66,884	
Bannockburn	F 8/6	363.10	4.06	150,957	
Margaret's Hope	E 47	816.10	..	397,161	
Sungma	E 50	382.00	..	181,270	
Tinzum	E 52	363.81	..	138,455	
Maharancee	F 27	..	..	..
Ringtong and Hopetown	K 34/35	860.03	5.00	276,883	
Balasun	K 36	437.17	..	202,689	
Murnah	K 37	354.75	..	149,338	
Gyabaree	K 38	613.95	0.20	256,718	

APPENDIX I—*contd.*

STATISTICS OF TEA—*contd.*

Name of Tea Estate	Regd. No.	Area in acres		Figures represent lbs.	
		Planted tea area at 31-3-1952	Tea area lying fall- ow at 31-3- 1951	Quantity of made tea produced in calendar year 1952	
				Black	Green
1	2	3	4	5	6
Singbullie	K 39	418.13	..	153,604	
Tingling	K 40	310.74	..	86,855	
Badantam	K 41	781.00	..	613,488	
Barnesbeg	K 42	281.00	..	173,805	
Tukvar	K 43	488.65	3.44	190,578	
Pashok	L 4	883.36	11.13	400,780	
Darjeeling Tea and Cinchona	L 5	904.17	66.60	476,133	
Dilaram	M 9	487.76	..	116,731	
Mim	M 23	463.30	..	188,716	
Gielhi	P 4	533.00	..	250,086	
Pussimbing	P 14	570.25	..	152,816	
Teesta Valley	P 17	717.57	..	384,635	
Tumsong	P 18	354.48	..	145,387	
Selimhong	Q 30	381.00	..	156,471	
Lopchu	1	247.50	..	98,143	
Rungmook	3	889.00	..	128,000	
Rangaroon	4	224.00	..	..
Gopaladhara	6	322.94	..	139,959	
Eden Vale	7	90.00	..	22,568	
Avongrove	8	475.00	..	163,931	
Tindharia	45	368.25	..	37,212	
Singell	47	726.14	..	240,656	
Monteviot	73	185.00	..	38,857	
Cedars	95	270.33	..	152,000	
Happy Valley and Winsor	100	260.00	..	68,175	
Sepoydoorah	127	260.20	3.80	69,165	
Mahalderam	173	162.05	..	36,968	
Soureni	199	166.00	..	55,237	
United Majhua	210	110.54	..	10,225	
Rongbong	216	47.00	..	..
Aloobari	217	120.00	..	9,216	
Nenbong	218	725.50	..	..
Dow Hill	246	50.00	..	12,209	
Steinghal	301	56.11	..	19,170	
Gayabari	309	140.70	2.50	69,295	
Giddapahar	311	260.71	..	33,440	129,792
Glendarnel Lodge	413	17.00	..	5,861	
Saumebeong	444	276.00	..	..
Dumsong	956	4.71	..	1,101	
Mullootar	1302	383.00	..	..
Sivitar	1303	396.00	..	..
Ansellung	1580	7.50	..	2,280	
Mukuihari	1605	430.00	..	86,081	
Chityapani	1606	143.00	..	5,593.50	
Springside	1801	489.00	..	152,157	
Bhojnarain	1953	407.36	..	310,840	
Liza Hill	1954	313.00	..	175,542	
Bloomfield	1959	568.88	..	127,865	
Selim Hill	1968	426.50	..	..
Lehong and Mineral Spring	1973	630.00	..	..
Dumsong (Leslie Villa)	1995	6.02	..	730	
Dumsong (Hillbart Villa)	1997	2.87	..	1,145	
Dumsong (Holy Family House)	1998	4.70	..	941	
Castleton	2025	377.00	..	1,042	
Singtom	2031	626.93	2.00	79,779	
Mohan Majhua	2047	110.53	..	217,920	
Pandam	2063	266.25	..	17,346	
Oaks	2094	320.00	..	87,397	

Collected from the Central Tea Board, *vide*: Chairman's D.O. No. 5459, dated the 25th September, 1953.

APPENDIX I—*contd.*

STATISTICS OF TEA—*concl'd.*

TERAI

Name of Tea Estate	Regd. No.	Area in acres		Figures represent lbs.	
		Planted tea area at 31-3-1952	Tea area lying fallow at 31-3-1951	Quantity of made tea produced in calendar year 1952	
				Black	Green
1	2	3	4	5	6
Gungaram	B 32	1,066.72	8.00	1,141,230	..
Ord	B 33	546.15	..	411,701	..
Putinbari	B 34	248.32	6.00	227,523	..
Hansqua	B 35	498.94	21.62	524,327	..
Gayuganga	2190	785.84	..	446,380	..
Tirrihannah	E 51	532.64	16.20	555,701	..
Bagdogra	H 31	324.05	..	256,182	..
Longview	2153	760.17	..	360,697	..
Singhu Jhora	H 35	230.50	10.50	161,001	..
New Terai	L 2	946.78	..	689,812	..
Pahargoomiah	L 3	931.98	13.90	993,116	..
Balgachi	2162	420.31	5.00	271,277	56,202
New Chumta	P 12	493.09	10.00	568,124	..
Tupoo	Q 31	263.30	27.82	409,225	..
Simulbarie	X 4	580.00	..	299,285	..
Azamabad	X 6	200.00	..	72,600	..
Daulatpore	18	168.00	..	62,182	52,447
Nuxulbari	32	620.32	11.00	272,401	..
Sukna	34	490.74	..	335,713	..
Chandmoni	56	396.00	..	274,088	..
Fulbari	62	342.23	..	36,013	262,223
Domoni and Krestapur	118	442.84	..	132,901	147,043
Kharibari	119	334.50	..	34,525	105,081
Mohurgong and Metabari	126	611.00	..	567,825	..
Matigora	136	275.32	23.70	69,886	70,503
Manjha	146	410.75	..	109,186	..
Bejoynagar	151	341.85	..	225,317	41,433
Sannyasithan	161	233.06	14.00	..	..
Fulbari Patan	176	231.77	9.55	51,313	79,790
Nischintapur	224	381.70	..	48,492	95,873
Dagapur	225	351.17	56.46	11,670	188,090
Ashapur	252	248.85	..	11,540	66,966
Morapur	254	170.00	..	5,092	17,978
Kamalpur	277	155.70	2.38	87,548	..
Bengdubi	412	60.00	..	..	..
Atal	566	606.53	74.46	239,540	..
Merryview	666	520.00	..	209,314	135,894
Thanjhora	707	524.16	..	184,448	214,565
Kamala	1470	698.00	..	564,748	..
Lohagarh	1671	353.00	6.00	232,742	2,425
Gulma	1712	342.27	81.54	333,347	..
Marionbarie	2070	537.39	11.50	1,800	198,095.50
Rhoni	2074	1,336.92	85.00	..	..

APPENDIX I—contd.

Note I

AREA AND PRODUCTION OF TEA GARDENS IN DARJEELING, 1952

Serial No.	Name of Garden	Association to which affiliated	Area of tea garden in acres	Area under tea bushes in acres	Total production of tea in 1952 (in lbs.)
1	2	3	4	5	6
Sadar subdivision					
1	Arya T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	597.50	239.00	79,158
2	Avongrove T. E., P. O. Nagri Spur, Rly. Stn. Ghoom	I. T. A.	1,000.00	475.00	164,221
3	Badamtam T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	3,071.75	736.38	619,879
4	Bannockburn T. E., P. O. Lebong, Rly. Stn. Darjeeling	I. T. A.	736.22	327.74	150,957
5	Barnesbog T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	763.09	277.52	176,315
6	Bloomfield T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	..	573.88	..
7	Cedars and Rangmook T. E., P. O. Sonada, Rly. Stn. Sonada	I. T. A.	1,680.00	1,180.00	280,000
8	Chumong T. E., P. O. Nagri Spur, Rly. Stn. Ghoom	I. T. A.	802.82	399.58	126,458
9	Chongtong T. E., P. O. Marybong, Rly. Stn. Ghoom	I. T. A.	1,760.00	1,065.00	441,280
10	Darjeeling Tea and Cinchona T. E., P. O. Rangli Rangliot, Rly. Stn. Gielle	I. T. A.	..	1,001.00	..
11	Dooterlah T. E., P. O. Sonada, Rly. Stn. Sonada	I. T. A.	4,676.52	1,304.54	409,741
12	Gielle T. E., P. O. Rangli Rangliot, Rly. Stn. Gielle	I. T. A.	1,024.15	500.00	250,086
13	Ging T. E., P. O. Lebong, Rly. Stn. Darjeeling	I. T. A.	1,683.00	541.10	274,549
14	Glenburn and Simbong T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	1,750.00	693.00	360,544
15	Takdah and Glendarrel T. E., P. O. Ghoom, Rly. Stn. Ghoom	I. T. A.	20.00	16.50	5,861
16	Happy Valley and Windsor T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	298.00	234.00	68,175
17	Illam and Shookteam T. E. (Nepal), P. O. Sukhiapokhri, Rly. Stn. Ghoom	I. T. A.	..	300.00	..
18	Kalej Valley T. E., P. O. Sonada, Rly. Stn. Sonada	I. T. A.	..	658.75	..
19	Lebong and Mineral Spring T. E., P. O. Lebong, Rly. Stn. Darjeeling	I. T. P. A.	1,070.25	582.50	63,941
20	Lingia T. E., P. O. Marybong, Rly. Stn. Ghoom	I. T. A.	543.63	365.28	175,020
21	Liza Hill T. E., P. O. Marybong, Rly. Stn. Ghoom	I. T. A.	469.00	313.00	177,727
22	Lopchu T. E., P. O. Lopchu, Rly. Stn. Ghoom	I. T. A.	640.00	234.00	98,143
23	Marybong and Kyol T. E., P. O. Marybong, Rly. Stn. Ghoom	I. T. A.	876.90	670.00	177,541
24	Mim T. E., P. O. Ghoom, Rly. Stn. Ghoom	I. T. A.	995.00	463.25	190,992
25	Moondakotee T. E., P. O. Sonada, Rly. Stn. Sonada	I. T. A.	2,406.35	1,197.06	434,706
26	Nagri T. E., P. O. Nagri Spur, Rly. Stn. Ghoom	I. T. A.	1,422.38	758.43	394,400
27	Nagri Farm T. E., P. O. Nagri Spur, Rly. Stn. Ghoom	I. T. A.	1,411.91	683.24	405,130
28	Namring, Poobong and Zinglam T. E., P. O. Rangli Rangliot, Rly. Stn. Gielle	I. T. A.	2,495.00	904.17	476,133
29	Oaks T. E., P. O. Sonada, Rly. Stn. Sonada	I. T. P. A.	585.00	320.00	86,378
30	Pandam and Aloobari T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	1,397.00	355.35	96,613
31	Peshok T. E., P. O. Tista Bridge, Rly. Stn. Gielle	I. T. A.	2,506.00	893.91	2,259,040
32	Phoolsering T. E., P. O. Lebong, Rly. Stn. Darjeeling	I. T. A.	1,283.00	362.50	209,415
33	Pussimbi T. E., P. O. Ghoom, Rly. Stn. Ghoom	I. T. A.	1,750.00	570.25	152,816
34	Poobong T. E., P. O. Ghoom, Rly. Stn. Ghoom	I. T. A.	1,287.00	500.43	178,969
35	Rangaroon T. E., P. O. Ghoom, Rly. Stn. Ghoom	I. T. A.	388.00	214.00	217,165
36	Rangli Rangliot T. E., P. O. Rangli Rangliot, Rly. Stn. Gielle	I. T. A.	1,032.43	341.00	196,350
37	Rishihat T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	500.00	346.46	116,569
38	Rongbong T. E., P. O. Sukhiapokhri, Rly. Stn. Ghoom	I. T. A.	..	47.00	..
39	Rangneet T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	396.66	185.86	196,350
40	Selimbong T. E., P. O. Nagri Spur, Rly. Stn. Ghoom	I. T. A.	777.88	381.00	66,884
41	Singla and Takvar T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	3,198.00	1,336.00	663,344
42	Singtom and Stienthal T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	1,570.80	694.00	237,090
43	Soom T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	1,302.00	539.00	279,523
44	Sungma T. E., P. O. Nagri Spur, Rly. Stn. Ghoom	I. T. A.	1,194.84	745.81	319,725
45	Takdah T. E., P. O. Ghoom, Rly. Stn. Ghoom	I. T. A.	1,648.73	443.63	216,428
46	Takvar T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	..	1,705.00	..
47	Tamsang T. E., P. O. Marybong, Rly. Stn. Ghoom	I. T. A.	469.47	354.48	145,387
48	Tista Valley T. E., P. O. Rangli Rangliot, Rly. Stn. Gielle	I. T. A.	1,973.10	717.24	384,635
49	Turzum T. E., P. O. Nagri Spur, Rly. Stn. Ghoom	I. T. A.	..	363.81	..
50	Vah-Takvar T. E., P. O. Darjeeling, Rly. Stn. Darjeeling	I. T. A.	..	502.37	..
Total for Sadar subdivision			56,353.38	28,622.02	12,023,638
			or	or	
			88.05	44.72	
			sq. miles	sq. miles	

APPENDIX I—contd.

AREA AND PRODUCTIONS OF TEA GARDENS IN DARJEELING, 1952—contd.

Serial No.	Name of Garden	Association to which affiliated	Area of tea garden in acres	Area under tea bushes in acres	Total production of tea in 1952 (in lbs.)
1	2	3	4	5	6
Kurseong subdivision					
51	Ambootia T. E., P. O. Kurseong, Rly. Stn. Kurseong	I. T. A.	2,207.00	758.02	335,360
52	Balasun T. E., P. O. Tung, Rly. Stn. Tung	I. T. A.	1,150.00	347.17	204,689
53	Chaitapani T. E., P. O. Kurseong, Rly. Stn. Kurseong		168.00	143.00	5,593
54	Dilaram T. E., P. O. Tung, Rly. Stn. Tung	I. T. A.	1,150.00	488.27	110,565
55	Dow Hill T. E., P. O. Kurseong, Rly. Stn. Kurseong		..	50.00	..
56	Eden Vale T. E., P. O. Tung, Rly. Stn. Tung		..	90.00	..
57	Gayabari T. E., P. O. Gayabari, Rly. Stn. Gayabari	I. T. P. A.	591.71	147.21	69,295
58	Giddapahar T. E., P. O. Kurseong, Rly. Stn. Kurseong		863.00	271.13	163,232
59	Goomtee T. E., P. O. Mahanadi, Rly. Stn. Mahanadi	I. T. A.	827.00	344.59	143,571
60	Gopaldhara T. E., P. O. Kurseong, Rly. Stn. via Ghoom	I. T. A.	1,015.00	322.94	139,959
61	Gowrishankar T. E., P. O. Kurseong, Rly. Stn. Kurseong		631.00	377.00	79,779
62	Jangpana T. E., P. O. Mahanadi, Rly. Stn. Mahanadi	I. T. A.	256.93	201.27	97,020
63	Longview T. E., P. O. Kurseong, Rly. Stn. Kurseong		3,503.00	758.62	360,697
64	Mahaldiram T. E., P. O. Kurseong, Rly. Stn. Kurseong		334.48	163.42	36,968
65	Makaibari T. E., P. O. Kurseong, Rly. Stn. Kurseong		379.00	430.00	85,039
66	Mallotar and Fagutar T. E., P. O. Mahanadi, Rly. Stn. Mahanadi		1,150.00	383.00	17,553
67	Manjha T. E., P. O. Kurseong, Rly. Stn. Kurseong	I. T. P. A.	764.00	419.00	109,186
68	Margarot's Hopo and Maharani T. E., P. O. Tung, Rly. Stn. Tung	I. T. A.	..	816.10	..
69	Mohan Majuwa T. E., P. O. Kurseong, Rly. Stn. Kurseong		323.45	110.53	17,346
70	Monteviot and Evandale T. E., P. O. Kurseong, Rly. Stn. Kurseong		275.00	268.00	61,789
71	Murmah T. E., P. O. Tung, Rly. Stn. Tung	I. T. A.	1,408.00	383.75	150,738
72	Norbong, Sumring and Gitangay Dn. T. E., P. O. Tindharia, Rly. Stn. Tindharia		2,669.00	725.00	58,131
73	Okayti T. E., P. O. Mirik, Rly. Stn. via Ghoom	I. T. A.	1,086.00	505.00	170,805
74	Phuguri T. E., P. O. Kurseong, Rly. Stn. Siliguri	I. T. A.	1,589.82	575.75	234,400
75	Ringtong and Hopetown T. E., P. O. Tung, Rly. Stn. Tung	I. T. A.	1,954.34	856.65	280,770
76	Rohini T. E., P. O. Kurseong, Rly. Stn. Sukna		5,183.85	1,402.02	14,374
77	Selm Hill T. E., P. O. Tindharia, Rly. Stn. Tindharia	I. T. A.	2,067.96	426.50	129,088
78	Sepoydhura T. E., P. O. Kurseong, Rly. Stn. Kurseong		842.50	265.00	69,165
79	Seyok T. E., P. O. Mirik, Rly. Stn. via Ghoom	I. T. A.	1,180.10	381.82	142,307
80	Simulbari T. E., P. O. Kurseong, Rly. Stn. Kurseong		1,315.88	580.00	277,578
81	Singbulli T. E., P. O. Kurseong, Rly. Stn. Kurseong	I. T. A.	..	418.13	..
82	Singell T. E., P. O. Kurseong, Rly. Stn. Kurseong	I. T. A.	1,328.00	726.00	240,656
83	Sivitar T. E., P. O. Tindharia, Rly. Stn. Tindharia		1,648.00	396.00	19,968
84	Soureni T. E., P. O. Mirik, Rly. Stn. Siliguri	I. T. A.	1,126.05	172.64	55,237
85	Spring-ide T. E., P. O. Kurseong, Rly. Stn. Kurseong		592.00	480.00	152,157
86	Thurbu T. E., P. O. Mirik, Rly. Stn. via Ghoom	I. T. A.	3,479.36	1,200.00	404,957
87	Tindharia T. E., P. O. Tindharia, Rly. Stn. Tindharia	I. T. P. A.	1,010.85	368.25	37,212
88	Tingling and Simulbari T. E., P. O. Kurseong, Rly. Stn. Siliguri	I. T. A.	2,176.42	728.87	246,761
89	United Majhwa T. E., P. O. Kurseong, Rly. Stn. Kurseong	I. T. A.	..	110.54	..
Total for Kurseong subdivision			47,246.70	17,681.19	4,727,935
			or	or	
			73.82	27.63	
			sq. miles	sq. miles	
Siliguri subdivision					
90	Ashapur T. E., P. O. Naxalbari, Rly. Stn. Naxalbari	I. T. P. A.	430.00	253.00	78,506
91	Atal T. E., P. O. Hatighisa, Rly. Stn. Hatighisa	I. T. P. A.	1,410.00	687.37	239,540
92	Azamded T. E., P. O. Naxalbari, Rly. Stn. Naxalbari		426.30	191.00	72,600
93	Bagdogra T. E., P. O. Bagdogra, Rly. Stn. Bagdogra		703.56	324.05	256,182
94	Bengdubi T. E., P. O. Bagdogra, Rly. Stn. Bagdogra		110.84	60.00	closed during the whole year 1952
95	Bhojnarayan T. E., P. O. Kamalpur, Rly. Stn. Bagdogra	I. T. P. A.	950.00	412.36	310,840
96	Bijoynagar T. E., P. O. Naxalbari, Rly. Stn. Naxalbari	I. T. P. A.	1,007.04	356.06	208,183
97	Bilgachi T. E., P. O. Panighatta, Rly. Stn. Naxalbari		2,246.00	433.00	327,539
98	Chandmoni T. E., P. O. Siliguri, Rly. Stn. Siliguri	I. T. P. A.	822.89	402.35	274,088
99	Dagapur T. E., P. O. Siliguri, Rly. Stn. Siliguri	I. T. P. A.	702.00	351.17	199,760
100	Daulatpur T. E., P. O. Naxalbari, Rly. Stn. Batasi	I. T. P. A.	387.39	180.00	114,629
101	Doemoni Krishapur T. E., P. O. Bagdogra, Rly. Stn. Bagdogra	I. T. P. A.	847.05	482.57	279,949
102	Fulbari T. E., P. O. Naxalbari, Rly. Stn. Batasi	I. T. P. A.	871.29	342.23	298,236

APPENDIX I—concl'd.

AREA AND PRODUCTIONS OF TEA GARDENS IN DARJEELING, 1952—concl'd.

Serial No.	Name of Garden	Association to which affiliated	Area of tea garden in acres	Area under tea bushes in acres	Total production of tea in 1952 (in lbs.)
1	2	3	4	5	6
Siliguri subdivision—concl'd.					
103	Fulbari Patan, P. O. Siliguri, Rly. Stn. Siliguri	I. T. P. A.	..	213.77	..
104	Gangaram T. E., P. O. Siliguri, Rly. Stn. Siliguri		2,615.54	1,100.55	1,141,230
105	Gayaburee T. E., P. O. Panighatta, Rly. Stn. Naxalbari	I. T. A.	3,005.00	614.00	262,797
106	Gaya Ganga T. E., P. O. Bagdogra, Rly. Stn. Bagdogra	I. T. P. A.	1,494.87	785.84	446,380
107	Hanstwua T. E., P. O. Bagdogra, Rly. Stn. Bagdogra		975.54	516.73	581,427
108	Kamala T. E., P. O. Kamalabagan, Rly. Stn. Bagdogra	I. T. P. A.	1,888.77	698.00	564,748
109	Kamalpur T. E., P. O. Bagdogra, Rly. Stn. Bagdogra		577.08	150.08	87,548
110	Khoribari T. E., P. O. Khoribari, Rly. Stn. Naxalbari	I. T. P. A.	1,100.00	334.50	139,606
111	Lohagarh T. E., P. O. Panighatta, Rly. Stn. Bagdogra		958.68	390.53	235,167
112	Marionbari T. E., P. O. Simulbari, Rly. Stn. Siliguri and Sukna	I. T. P. A.	1,447.85	540.39	199,895
113	Matigara T. E., P. O. Matigara, Rly. Stn. Siliguri	I. T. P. A.	600.72	282.43	140,389
114	Merryview T. E., P. O. Hatighisa, Rly. Stn. Hatighisa	I. T. P. A.	1,185.00	520.00	345,208
115	Mohurganj, Meotabari and Gulma T. E., P. O. Sukna, Rly. Stn. Sukna	I. T. P. A.	2,808.30	980.22	901,171
116	Morapur T. E., P. O. Panighatta, Rly. Stn. Bagdogra		204.50	170.00	22,746
117	Naxalbari T. E., P. O. Naxalbari, Rly. Stn. Naxalbari	I. T. P. A.	2,278.00	642.00	272,401
118	New Chamta T. E., P. O. New Chamta, Rly. Stn. Siliguri		1,033.31	405.44	568,124
119	New Terai Assn. T. E., P. O. Panighatta, Rly. Stn. Bagdogra		4,500.00	995.00	689,812
120	Nischintapur T. E., P. O. Matigara, Rly. Stn. Siliguri	I. T. P. A.	800.00	381.70	144,365
121	Ord T. E., P. O. Panighatta, Rly. Stn. Siliguri		1,499.93	564.24	41,143
122	Pahargoomua T. E., P. O. Bagdogra, Rly. Stn. Hatighisa		2,458.60	947.09	993,116
123	Putinbari T. E., P. O. Matigara, Rly. Stn. Siliguri		494.35	255.32	227,523
124	Sanyashithan T. E., P. O. Bagdogra, Rly. Stn. Bagdogra	I. T. P. A.	434.06	244.06	110,459
125	Singhijhora T. E., P. O. Bagdogra, Rly. Stn. Bagdogra		353.94	220.00	161,001
126	Sukna T. E., P. O. Sukna, Rly. Stn. Sukna	I. T. P. A.	727.51	494.74	344,160
127	Taipoo T. E., P. O. Bagdogra, Rly. Stn. Bagdogra		960.71	381.56	409,225
128	Thanjhora T. E., P. O. Thanjhora, Rly. Stn. Batashi	I. T. P. A.	1,073.09	527.16	399,013
129	Tirrihana T. E., P. O. Panighatta, Rly. Stn. Bagdogra		1,761.35	560.65	555,760
Total for Siliguri subdivision			48,151.06	18,490.16	12,644,466
			or	or	
			75.24	28.89	
			sq. miles	sq. miles	
Kalimpong subdivision					
130	Ambeok T. E., P. O. Fagu, Rly. Stn. Matelli		902.00	303.00	86,560
131	Dumsong T. E., P. O. Kalimpong, Rly. Stn. Giello		24.50	23.00	4,959
132	Fagu T. E., P. O. Fagu, Rly. Stn. Matelli		1,773.41	948.00	651,588
133	Kumai T. E., P. O. Matelli, Rly. Stn. Matelli		2,047.75	709.00	486,784
134	Mission Hill T. E., P. O. Fagu, Rly. Stn. Matelli		901.89	448.99	249,365
135	Sriram Sambeong T. E., P. O. Algarh, Rly. Stn. Giello		1,749.93	300.90	133,230
Total for Kalimpong subdivision			7,399.48	2,732.89	1,612,486
			or	or	
			11.56	4.27	
			sq. miles	sq. miles	
Total for Darjeeling district			159,150.62	67,526.26	31,008,525
			or	or	lbs.
			248.67	105.51	
			sq. miles	sq. miles	

APPENDIX II

An Account of Land Management in Darjeeling, 1870-1945

I. 1871

The total area of the Darjeeling district is 1,231 square miles. The terrain or plains subdivision occupies an area of 173,856 acres or 271.65 square miles, of which in 1871 62,115 acres or 97.06 square miles was returned as under cultivation; 100,875 acres or 157.62 square miles as cultivable but not actually under cultivation, and 10,866 acres or 16.98 square miles as barren and uncultivable waste. The estimated area under different crops in the terrain in 1871 was returned by the Deputy Commissioner as follows:

	Acres
Total area	173,856 (or 271.65 square miles)
Total cultivated area	62,115 (or 97.06 square miles)
Rice	47,737
Cotton	3,818
Pulses	1,909
Jute	3,818
Oilseeds	1,324
Sugarcane	1,409
Tea	1,900
Vegetables	50
Fruit trees	50
Other crops	100

The Hills subdivision occupies an area of 615,321 acres or 961.44 square miles. The statement of land employment in the Hills subdivision is as follows.

	Acres
Total area	615,321 (or 961.44 square miles)
Area under cultivation	22,453 (or 35.08 square miles)
Cultivable but not cultivated	456,945 (or 713.98 square miles)
Barren and incapable of cultivation	135,923 (or 212.39 square miles)
Rice	6,147
Maize	4,083
Bhutta or maize or Indian Corn	2,233
Oilseeds	40
Potatoes	174
Tea	9,000
Cinchona	300
Vegetables	11
Fruit trees	3
Cotton	58
Other crops	404

Total cultivated area in the Darjeeling hills 22,453 (or 35.08 square miles)

Including both the Terrain and the Hills the estimated cultivated area of Darjeeling district in 1872 amounted to 84,568 acres or 132.14 square miles; the cultivable but as yet uncultivated area to 557,820 acres or 871.59 square miles and the uncultivable waste to 140,789 acres or 229.36 square miles.

Rice forms the staple agricultural product of the plains or the Terrain portion of the district. This is divided into two great classes, viz., *aman* or *haimantik* and *aus* or *bhadon*. In the hilly portion of the district, rice is not grown by any means to such an extent as in the Terrain. The names by which the two chief varieties are known are *chota dhan* and *bara dhan*, the former being grown in comparatively small quantity as compared with the latter. The *chota dhan* of the hills correspond with the *bhadon dhan* of the plains; it is sown in low lands in March and reaped throughout September. The

bara dhan corresponds to the *haimantik dhan* of the plains; it is sown on high lands in May and reaped throughout November.

No marked improvement has taken place of late years in the quality of rice in the district, but considerable extension has taken place in the area under rice cultivation. In 1870 an attempt was made to introduce Carolina rice into the district; the accounts received as to the results of the experiment are conflicting. An English planter informed the Deputy Commissioner that his sample produced magnificent looking plants, which over-topped all the neighbouring native rice; the ears, however, contained no grain. A native husbandman, on the other hand, spoke well of his sample, and added that, but for his not having received the seed in proper time, the yield would have been better. The Deputy Commissioner is of opinion that the acclimatized produce of the pure Carolina grain would be an improvement on the native rice. The lands throughout the Terrain, formerly in jungle, are being rapidly taken up for rice cultivation, owing to the increase of population. The Deputy Commissioner states that this extension of the cultivated area would doubtless proceed much more rapidly, could the Forest Department see to it to be advantageous to relinquish any of the reserved forest tracts. These forests afford cover to wild elephants and tigers, the former of which do great damage to the crops, and the latter frequently carry off the cultivators. The extension of rice cultivation is due not to the substitution of that crop for inferior cereals, but to the clearing and reclamation of jungle land. In the hilly tracts, the extension of rice cultivation is confined to the Nepalis, who generally select for tillage a comparatively level site near the banks of a river or water-course, and lay it out in successive terraces, one above the other. Their system of agriculture is decidedly in advance of the primitive *jhum* method followed by the Meches and other aboriginal tribes. It appears probable that, as available jungle land for this nomadic method of tillage becomes more and more scarce, the aboriginal tribes will gradually learn the use of the plough from the Nepalis, and will adopt the higher system of cultivation practised by that class of the community.

The only agricultural or other labourers who live entirely by wages are immigrants from other districts. The actual cultivators in the terrain subdivision are either *prajas* or *thikadars*. The *prajas* are nearly identical with the *krishans* or agricultural labourers in the district to the south. They cultivate the land of others on a *metayer* tenure; receiving an advance of seed or of money from the *jotedar*, who also supplies all agricultural implements. The *praja* only finds the labour, and in return for this receives a half-share of the produce. The *thikadars* pay a money rent for their lands, and of course retain the whole of the produce for their own use and benefit. The *thikadari* system is said to be gradually coming into general operation. Women do not often work in the fields in the terrain, but children of 10 years of age and upwards are commonly employed on agricultural labour.

There is a good deal of spare land in the Darjeeling *terai*. Some of it is held by lessees under the Waste Land Rules, and a great portion is made up of forests which are either private property, or are under the administration and supervision of the Forest Department. These forests are in many cases full of wild beasts, whose ravages cause much of the surrounding land to lie waste, although otherwise fit for cultivation. The Deputy Commissioner states that the great hope for the *terai* consists in the fact that the lands are being rapidly taken up by European planters, who will soon buy up many of the private forests and fell them for clearings.

APPENDIX II—contd.

Yield per acre: The Deputy Commissioner believes that six maunds of paddy per bigha or 13 cwts. per acre in the *terai* is not more than a fair outturn from a good land. Second crops are not obtained from the same lands in the *terai*. The Deputy Commissioner considers that a bigha of land in the Darjeeling hills in a favourable situation and cultivated by a Nepali husbandman will yield as large an outturn as the best lands in other hills or from 5 to 6 maunds of paddy—from 11 to 13 cwts. per acre. It is not usual to take a second crop from the same land in one year; but in some instances a crop of wheat is grown after paddy has been reaped.

Average land per agricultural family: In the *terai* lands a farm from 8 to 10 *hals* or from 160 to 200 bighas—from 53 to 55 acres would be considered a very large holding and one of one *hal*, or 20 bighas=6½ acres, a very small one. A holding containing 1 *hal* or 20 bighas for each able-bodied male adult in a cultivator's family would yield a comfortable maintenance for his household. A pair of oxen is supposed to cultivate one *hal*. A holding consisting of one *hal* of land would not make its proprietor so well off as a respectable retail shopkeeper nor will enable him to live as well as a man drawing Rs. 8 or 16s a month. The cultivators as a body are in debt, but not deeply so. The larger *jotedars*, who hold estates of 200 bighas and upwards directly from the Government, are also in debt, some of them very heavily. The Deputy Commissioner in 1871 estimated that seven-eighths of this class were in debt.

II Imperial Gazetteer, 1881

Rice substitutes the one food crop grown in the *terai* portion of the district; but among the hills Indian corn, millets (malwa, etc.), wheat, potatoes and cardamoms are also grown wherever practicable. Subordinate crops in the plains are cotton, jute, pulses, oilseeds and sugarcane. As usual throughout Bengal rice crop is divided in two harvests, the *aman* or *haimantik* reaped in winter and the *aus* or *bhadoi* reaped in Bhadra. Rice cultivation is rapidly extending throughout the *terai*, although somewhat retarded by the requirements of the Forest Department. Bengali and Nepali cultivators use the plough; but the Meches and the other aboriginal people still adhere to the old method of cultivation known as *jhum*, which consists in burning down a fresh patch of jungle land each successive year. They use the *dao* or hill-knife for all rustic operations. Manure is not commonly applied anywhere; but throughout the *terai* and in the hills wherever natural facilities are afforded irrigation is industriously practised by the cultivators of all classes.

Yield per acre: In the *terai*, land is measured by the *hal*, which is the area that can be tilled by a plough and one yoke of oxen. The produce is about 13 cwts. per acre. In the hill no system of land measurement is known, but it has been estimated that the amount and value of the outturn is approximately the same as in the *terai*. No rent is there paid for the land but a house tax is levied by the proprietors which averages about 10s. per house.

III 1903-4

The principal agricultural statistics for 1903-4 are shown below in square miles:

Subdivision	Total	Cultivated	Cultivable waste	Forests
Darjeeling .	726	116	27	326
Kurseong .	438	135	17	107
Total .	1,164	251	44	433

Rice, which occupies nearly a third of the cultivated area, is the only foodgrain grown in the *terai*, the winter crop being the most important. In the hills Indian corn forms a valuable staple in Kalimpong, and the area under it amounts to more than three-quarters of the net cropped area.

Yield per acre: The average yield of Indian corn on the best hill lands is about 18 maunds per acre and on the inferior lands 9 maunds. In the *terai* the yield of rice per acre varies from 4 to 10 maunds. In the hills, millets, such as marua, wheat, potatoes, and cardamoms are grown wherever practicable. Subordinate crops in the plains are cotton, jute, which is encroaching on the rice area, pulses, oilseeds and sugarcane.

Agriculturally the district is divided into three tracts: the mountains west of the Tista river, Kalimpong, and the *terai*. At the time of cession the western mountains were almost wholly covered with forest, and were very sparsely populated; almost all the slopes are now under tea, and two-thirds of the population outside the municipality and cantonments are resident on the tea gardens. Kalimpong contains only four tea gardens, and the greater part of the tea area is reserved for native tea cultivation, five-sixths of the native inhabitants being settled on the Government estate. The *terai* contains a number of tea plantations along the feet of the hills, but there are also extensive areas under ordinary cultivation, and the tea garden population is barely one-fifth of the total.

A distinctive feature of the Himalayan agriculture is the terracing of the mountain slopes for rice cultivation. On steep slopes the labour of revetting the narrow terraces with stones is very great; but as the site of a rice-field is always selected so that it can be irrigated from some stream, the crop is a certain one and amply repays the labour expended. The incline of the slope, the aspect, and the elevation are important factors in the relative fertility of such lands. Many of the terraces are too narrow to admit the use of a plough, and these are cultivated with a hoe. The nomadic method of agriculture known as *jhum*, which consists in burning down of a fresh patch of jungle land each successive year, has practically ceased, as most of the forests in the district are now reserved by the Forest Department. Bengali and Nepali cultivators use the plough, and plough cultivation has also been adopted by the aboriginal tribes, especially east of the Tista. The hill chopper known as *dao* or *kukri* is widely used for all rustic operations. The Nepalese are by far the most enterprising cultivators, and special measures are necessary to protect the indigenous Lepchas from being ousted by them.

A good deal has been done to distribute improved seeds for various crops, and some remarkably fine maize has been grown in Kalimpong from American seed. Efforts have been made to extend the growth of potatoes, but blight has proved very destructive hitherto. Oranges and other fruit trees have been successfully grown at Kalimpong. Rice cultivation is spreading steadily in the mountains, especially in the east of the district.

Irrigation is not practised on a large scale, but throughout the *terai* and in the hills natural facilities are industriously utilised wherever they are to be found.

In Kalimpong the land has been classified for revenue purposes as cardamom, held rent-free for the first three years, during which there is practically no outturn, after which it is assessed at Rs. 10 per acre; terraced rice lands paying from 8 annas to Re. 14 annas per acre; unterraced cultivation, including fallows, of less than three years' standing being from 6 annas to 15 annas per acre; and fallows of three years' standing and over being from 2 annas to 3 annas per acre. Some lands in each of the last three classes are assessed at a slightly lower rate for the first three years of the settlement. [O. A. Bell, *Settlement Report* (Calcutta, 1905).]

APPENDIX II—contd.

IV District Gazetteer, 1947

Out of 1,192 square miles, the total area of the district, approximately 259 square miles are under tea leases, 432 square miles are under reserved forests, and 33 square miles are under cinchona. This leaves a balance of 463 square miles left for general unreserved forests and cultivation of non-plantation crops. It should, however, be noted that much of the area leased to tea is under ordinary cultivation by tea garden labour. This may be estimated at 50 per cent. of area not under tea, i.e., 80 square miles. The distribution between forests, cinchona, tea and other cultivation varies in different parts of the district which can be divided into three areas, in each of which a particular distribution is characteristic. In the hills, west of the Tista, a very large proportion of the area is under forest, tea and cinchona, and the area under ordinary non-plantation crops is very small, being mainly confined to an area north-west of the Little Rangit river known as Chebu Lama's grant. In the hills east of the Tista, there are very few tea gardens. Here the area under reserved forests is approximately 211 square miles and the area of the Kalimpong Government Estate is 176 square miles. An area of 21 square miles for tea and miscellaneous lands makes up the total area of the subdivision 408 square miles. Of the area of 176 square miles of the Government Estate, only 95 square miles were settled with tenants and of this only 84 were under crops. Thus in the Kalimpong Government Estate less than 50 per cent. were actually under crop. There are no similar figures for the Sadar and Kurseong subdivisions but the area of the West Tista Khas Mahals is 57 square miles and other areas in those subdivisions not under tea are approximately 22 square miles. It can be assumed that an area of roughly 79 square miles not under tea is let out to tenants in these two subdivisions. Thirty-five square miles of this land are perhaps actually cropped. The *terai* has a total area of 258 square miles of which 28 square miles are estimated to be under reserved forest and 66 under tea, leaving 164 square miles of other land. Out of this area of 164 square miles 14½ were waste and about 8½ were under sal forest; probably 20 square miles of the balance would be uncultivated, leaving 121 square miles as cropped area in the *terai*. Tabulated, the figures are as follows:

	Square miles
Total area of the district	1,192
Area under tea leases	259
(a) Ordinary cultivated area in tea gardens	80
Reserved forest	437
Cinchona	33
Cultivated unreserved forests and unculturable waste	463
Hills east of the Tista (Kalimpong Subdivision)	408
(a) Reserved forest	211
(b) (i) Kalimpong Government Estate	176
(ii) Settled with tenants	95
(iii) Area under crops	84
(c) Area under tea	21
Area west of the Tista (Darjeeling and Kurseong subdivisions)	193
(a) Khas Mahals	57
(b) Cultivated area not under tea	22
(c) Area let out to tenants (not under tea)	79
(d) Cropped area	35
Terai :	
(Siliguri subdivision)	258
(a) Reserved forest	28
(b) Area under tea	66
(c) Cultivated forest and waste lands	164
(i) Waste lands	14½
(ii) Sal forest	8½
(iii) Uncultivated land	20
(iv) Cropped area	121

The total non-plantation cropped area would thus come up to as follows:

	Square miles
Tea leased land	80
Sadar Kurseong	35
Kalimpong	84
Siliguri	121
Total	320

A rough summary of the use of land in the district is thus:

	Square miles
Reserved forest	437
Under tea	99
Under cinchona	33
Cropped	320
Waste, etc.	303
Total	1,192

The area under the main crops in the *terai* were as follows in the settlement of 1925:

	Acres	Percentage
Rice	49,523	79.0
Jowar (millet)	186	0.3
Maize	497	0.7
Mustard	2,202	3.6
Sugarcane	282	0.4
Jute	3,690	5.9
Tobacco	542	1.0
Garden produce	801	1.3
Fruit	265	0.4
Potatoes	313	0.5
Miscellaneous food	620	1.0
Miscellaneous non-food	3,843	6.0
Total	63,101	100.5

In the Kalimpong Government Estate in 1920 the following were the acreages under the main crops. Percentages are shown to compare with those for the *Terai*:

	Acres	Percentage
Rice	8,204	13.4
Wheat	2,542	4.1
Barley	267	0.4
Millet (kodo)	7,454	12.3
Maize	39,739	65.1
Mustard	539	.9
Cardamom and spices	1,466	2.4
Fruit	203	0.3
Potatoes	322	0.5
Miscellaneous food	291	0.5
Total	61,027	99.9

There are no complete figures for cropping in the rest of the hill area but the settlement report of the Relling Estate, dated 1928, gave the following figures and percentages which give useful guidance for the whole West Tista area:

	Acres	Percentage
Rice	528	3.3
Wheat	375	2.3
Barley	275	1.8
Millet (kodo)	814	5.1
Maize	12,025	75.2
Cardamom and spices	602	3.8
Potatoes	1,341	8.4
Total	15,960	99.9

Yield per acre: (1) **MAIZE:** The outturn varies from 4 to 10 maunds per acre, and higher with heavy manuring. The average yield may be taken to be 8 maunds per acre.

APPENDIX II—concl'd.

(2) **MILLET:** The outturn varies from 5 to 8 maunds per acre (average perhaps 6 maunds) when the crop is grown alone and less (say 5 maunds per acre) when it is grown together with maize.

(3) **RICE:** The outturn varies from 8 to 12 maunds per acre, and 10 may be taken as the average in the hills, although in the Terai double this figure may be attained. The yield of straw is heavy (25 to 35 maunds per acre).

(4) **POTATOES:** Yield varies from 30 to 120 maunds per acre; even up to 150 maunds per acre in very favourable conditions.

A very profitable vegetable garden business supplies both local and distant markets. There was so little cultivation before the British administration that it can almost be said that all the crops, fruits, and vegetables grown in the district have been introduced and acclimatised.

V Ishaque Survey, 1944-5

The agricultural statistics are as under:

	Acres
Cultivated area	110,196
Culturable waste	43,334
Unculturable waste	16,507
Area under jungles	15,815
Area under water	6,231

The area under both culturable waste and unculturable waste has decreased since the last settlement. Increase in the population, deforestation and extension of tea cultivation are the three main factors responsible for this decrease.

Of the different crops, the cultivators concentrate on *aman* paddy most, the soil being most suitable for the same. Next to it is *bhadoi* paddy and next is *rabi*, the area covered by each being *aman* 48,724 acres, *aus* 1,155 acres and *rabi* 4,315 acres. Jute 1,704 acres. Tea 18,450 acres. Jute and tea are the main among the special crops. The acreage under jute being so small it has little effect on the general economy of the area. As regards tea, it benefits the local population with a demand for labour.

There has been an increase in the acreage of *aman*, *rabi* and *bhadoi* crops over those of the last settlement.

Due to the undulating nature of the country lands, particularly in the Khas Mahal area, have been officially divided into three classes, viz., (a) Sukhakheth (unirrigated and usually untterraced), (b) Panikhet (irrigated and terraced), and (c) Cardamom land. Sukhakheth is mainly meant for dry cultivation, Panikhet for paddy cultivation and Cardamom lands (they may be Sukhakheth or Panikhet) exclusively for cardamom cultivation. The soil of the western zone, the Relling and the Samahong (Ulhong) Estates in Darjeeling subdivision is mainly fit for dry cultivation. The chief produce of these estates are maize, millet and *phapar* (buck-wheat), all of which grow in Sukhakheth. In most of the first-class lands maize is followed by one or other of the winter crops, e.g., millet, mustard and *phapar*, though mustard is grown rather sparsely.

The soil of the south-east Khas Mahal blocks of Kalimpong is mainly suitable for cultivation of paddy on all Panikheths and maize on the Sukhakheths, followed by millet. The soil in the northern Khas Mahal blocks of the same subdivision is fit for dry cultivation, the chief produces being maize, millets, *phapar*, soyabean, etc.

The list of crops grown include paddy, maize, millet, *phapar* (buck-wheat), soyabean, *masium* (a kind of pulse), *gahat* (pulse), *arhar*, *khesari*, pulse, *mug*, wheat, mustard, potato and sugarcane.

Wheat and mustard cultivation is, however, limited and is on the decrease.

Areas under the principal crops are as follows:

	Acres
Paddy	12,628
Millet	26,546
Maize	68,020
Tea	41,152
Vegetables	5,824
Fruits	1,993

Irrigation is not a great problem in this area. The Government waste lands consist mainly of beds of rivers, ravines and steep tree-clad slopes. The total of this unoccupied area including grazing reserves (7,761) is 47,587 acres in Kalimpong and 4,300 acres in Darjeeling and Kurseong subdivisions.

Cultivation of mulberry has become almost non-existent.

Average land per agricultural family: The size of an average holding in the district is 6.50 acres and the average size of a family in the hills works out at 5.5 persons being slightly higher than that in the plains.

Eighty per cent. of the agriculturists are *adhiars*, cultivating lands of *jotedars* on *adhi* system. The position of these *adhiars* is very unsatisfactory, as the shares the *adhiars* get is hardly sufficient to maintain themselves. The system keeps the *adhiars*, forming so large a proportion of the population, in perpetual poverty.

The following is a statement of land employment in the district:

Description	Hill sub-divisions of Darjeeling	Siliguri sub-division	Total
Paddy—			
(a) Aman	12,618	48,724	61,342
(b) Boro	Nil	Nil	Nil
(c) Aus	10	1,155	1,165
Gram	Nil	Nil	Nil
Wheat	1,126	10	1,136
Barley	395	16	411
Maize	68,020	534	68,554
Sugarcane . . . . .	..	231	231
Mustard . . . . .	..	3,008	3,008
Potato	1,793	542	2,335
Jute . . . . .	..	1,704	1,704
Mango . . . . .	..	53	53
Tobacco . . . . .	..	295	295
Area not available for cultivation	78,436	16,507	94,943
Culturable but not cultivated	64,387	43,334	107,721
Total area	575,321	170,037	745,358
Total area under aman crops	53,927	..	53,927
(a) Aman paddy	12,618	..	12,618
(b) Millet	26,546	..	26,546
(c) Cardamom	5,432	..	5,432
(d) Seasonal vegetables	3,169	..	3,169
(e) Oranges	1,742	..	1,742
(f) Others	4,381	..	4,381
Total area under rabi crops	5,866	..	5,866
(a) Wheat	1,126	..	1,126
(b) Barley	395	..	395
(c) Potato	1,793	..	1,793
(d) Seasonal vegetables	1,182	..	1,182
(e) Seasonal fruits	242	..	242
(f) Others	1,129	..	1,129
Total area under bhadoi crops	69,647	..	69,647
(a) Maize	68,020	..	68,020
(b) Aus paddy	10	..	10
(c) Seasonal vegetables	1,472	..	1,472
(d) Seasonal fruits	847	..	847
(e) Others	87	..	87
Total area of lands growing more than one crop	38,753	..	38,753
Soyabean	860	..	860
Country vegetables	1,470	..	1,470
English vegetables	3,680	..	3,680

APPENDIX III

Extracts from "Himalayan Journals"

by

Sir Joseph Dalton Hooker, K.C.S.I., C.B., M.D., D.C.L., F.R.S.

April 12, 1843

I awoke at 4 a.m., and found my *pulkee* on the ground, and the bearers coolly smoking their *hookahs* under a tree (it was raining hard); they had carried me the length of their stage twelve miles, and there were no others to take me on. I had paid twenty-four pounds for my *dawk*, from Garagola to the hills, to which I had been obliged to add a handsome *douceur*; so I lost all patience. After waiting and entreating during several hours, I found the headman of a neighbouring village, and by a further disbursement induced six out of the twelve bearers to carry the empty *pulkee*, whilst I should walk to the next stage, or till we should meet some others. They agreed, and cutting the thick and spongy sheaths of the banana used them for shoulder-pads; they also wrapped them round the *pulkee*-poles, to ease their aching clavicles. Walking along I picked up a few plants, and fourteen miles further on came again to the banks of the Mahanuddée, whose bed was strewn with pebbles and small boulders, brought thus far from the mountains (about thirty miles distant). Here, again, I had to apply to the headman of a village, and pay for bearers to take me to Titilya, the next stage (fourteen miles). Some curious long low sheds puzzled me very much, and on examining them they proved to be for the growth of *purn* or betel-pepper, another indication of the moisture of the climate. These sheds are twenty to fifty yards long, eight or twelve or so broad, and scarcely five high; they are made of bamboo, wattled all round and over the top. Slender rods are placed a few feet apart, inside, up which the Pepper Vines climb, and quickly fill the place with their deep green glossy foliage. The native enters every morning by a little door, and carefully cleans the plants. Constant heat, damp, and moisture, shelter from solar beams, from scorching heat, and from nocturnal radiation, are thus all procured for the plants, which would certainly not live twenty-four hours if exposed to the climate of this treeless district. Great attention is paid to the cultivation, which is very profitable. Snakes frequently take up their quarters in these hot-houses, and cause fatal accidents.

Titilya was once a military station of some importance, and from its proximity to the hills has been selected by Dr. Campbell (the Superintendent of Darjeeling) as the site for an annual fair, to which the mountain tribes resort, as well as the people of the plains. The Calcutta road to Darjeeling by Dinajpore meets, near here, that by which I had come; and I found no difficulty in procuring bearers to proceed to Siligoree, where I arrived at 6 a.m. on the 13th. Hitherto I had not seen the mountains, so uniformly had they been shrouded by dense wreaths of vapour: here, however, when within eight miles of their base, I caught a first glimpse of the outer range—sombre masses, of far from picturesque outline, clothed everywhere with a dusky forest.

Siligoree stands on the verge of the Terai, that low malarious belt which skirts the base of the Himalaya from the Sutlej to Brahmakoond, in Upper Assam. Every feature, botanical, geological, and zoological, is new on entering this district. The change is sudden and immediate: sea and shore are hardly more conspicuously different; nor from the edge of the Terai to the limit of perpetual snow is any botanical region more clearly marked than this, which is the commencement of Himalayan vegetation. A sudden descent leads to the

Mahanuddée river, flowing in a shallow valley, over a pebbly bottom: it is a rapid river, even at this season; its banks are fringed with bushes, and it is clear and sparkling as a trout stream in Scotland. Beyond it the road winds through a thick brushwood, choked with long grasses, and with but few trees, chiefly of *Acacia*, *Dalbergia Sissoo*, and a scarlet-fruited *Sterculia*. The soil is a red, friable clay and gravel. At this season only a few spring plants were in flower, amongst which a very sweet-scented *Crinum*, *Asphodel*, and a small *Curcuma*, were in the greatest profusion. Leaves of terrestrial orchids appeared, with ferns and weeds of hot damp regions. I crossed the beds of many small streams, some were dry, and all very tortuous; their banks were richly clothed with brushwood and climbers of *Convolvulus*, Vines, *Hærod*, *Leea*, *Menispermaceæ*, *Cucurbitaceæ*, and *Bignoniaceæ*. Their pent-up waters, percolating the gravel beds, and partly carried off by evaporation through the stratum of ever-increasing vegetable mould, must be one main agent in the production of the malarious vapours of the pestilential region. Add to this, the detention of the same amongst the jungly herbage, the amount of vapour in the humid atmosphere above, checking the upward passage of that from the soil, the sheltered nature of the locality at the immediate base of lofty mountains; and there appear to me to be here all necessary elements, which, combined, will produce stagnation and deterioration in an atmosphere loaded with vapour. Fatal as this district is, and especially to Europeans, a race inhabit it with impunity, who, if not numerous, do not owe their paucity to any climatic causes. These are the Mechs, often described as a squalid, unhealthy people, typical of the region they frequent; but who are, in reality, more robust than the Europeans in India, and whose disagreeably sallow complexion is deceptive as indicating a sickly constitution. They are a mild, inoffensive people, industrious for Orientals, living by annually burning the Terai jungle and cultivating the cleared spots; and, though so sequestered and isolated, they rather court than avoid intercourse with those whites whom they know to be kindly disposed.

After proceeding some six miles along the gradually ascending path, I came to a considerable stream, cutting its way through stratified gravel, with cliffs on each side fifteen to twenty feet high, here and there covered with ferns, the little *Oxalis sensitiva*, and other herbs. The road here suddenly ascends a steep gravelly hill, and opens out on a short flat, or spur, from which the Himalaya rise abruptly, clothed with forest from the base: the little bungalow of Punkabaree, my immediate destination, nestled in the woods, crowning a lateral knoll, above which, to east and west, as far as the eye could reach, were range after range of wooded mountains, 6,000 to 8,000 feet high. I here met with the India-rubber tree (*Ficus elastica*); it abounds in Assam, but this is its western limit.

From this steppe, the ascent to Punkabaree is sudden and steep, and accompanied with a change in soil and vegetation. The mica slate and clay slate protrude everywhere, the former full of garnets. A giant forest replaces the stunted and bushy timber of the Terai Proper; of which the *Duabanga* and *Terminalia* form the prevailing trees, with *Cedrela* and *Gordonia Wallichii*. Smaller timber and shrubs are innumerable; a succulent character pervades the bushes and herbs, occasioned by the prevalence of *Urticæ*. Large bamboos rather crest

APPENDIX III—contd.

the hills than court the deeper shade, and of the latter there is abundance, for the torrents cut a straight, deep, and steep course down the hill flanks: the gulleys they traverse are choked with vegetation and bridged by fallen trees, whose trunks are richly clothed with *Dendrobium Pierardi* and other epiphytcal Orchids, with pendulous *Lycopodia* and many ferns, *Hoya*, *Scitamineæ*, and similar types of the hottest and dampest climates.

The bungalow at Punkabaree was good—which was well, as my luggage-bearers had not come up, and there were no signs of them along the Terai road, which I saw winding below me. My scanty stock of paper being full of plants, I was reduced to the strait of botanising, and throwing away the specimens. The forest was truly magnificent along the steep mountain sides. The apparently large proportion of deciduous trees was far more considerable than I had expected; partly, probably, due to the abundance of the *Dillenia*, *Cassia*, and *Sterculia*, whose copious fruit was all the more conspicuous from the leafless condition of the plant. The white or lilac blossoms of the convolvulus-like *Thunbergia*, and other *Acanthaceæ*, where the predominant features of the shrubby vegetation, and very handsome.

All around, the hills rise steeply five or six thousand feet, clothed in a dense deep-green dripping forest. Torrents rush down the slopes, their position indicated by the dipping of the forest into their beds, or the occasional cloud of spray rising above some more boisterous part of their course. From the road, at and a little above Punkabaree, the view is really superb, and very instructive. Behind (or north) the Himalaya rise in steep confused masses. Below, the hill on which I stood, and the ranges as far as the eye can reach east and west throw spurs on to the plains of India. These are very thickly wooded, and enclosed broad, dead-flat, hot and damp valleys, apparently covered with a dense forest. Secondary spurs of clay and gravel, like that immediately below Punkabaree, rest on the bases of the mountains, and seem to form an intermediate neutral ground between flat and mountainous India. The Terai district forms a very irregular belt, scantily clothed, and intersected by innumerable rivulets from the hills, which unite and divide again on the flat, till, emerging from the region of many trees, they enter the plains, following devious courses, which glisten like silver threads. The whole horizon is bounded by the sea-like expanse of the plains, which stretch away into the region of sunshine and fine weather, in one boundless flat.

In the distance, the courses of the Teesta and Cusi, the great drainers of the snowy Himalayas, and the recipients of innumerable smaller rills, are with difficulty traced at this, the dry season. The ocean-like appearance of this southern view is even more conspicuous in the heavens than on the land, the clouds arranging themselves after a singularly sea-scape fashion. Endless strata run in parallel ribbons over the extreme horizon; above these, scattered cumuli, also in horizontal lines, are dotted against a clear grey sky, which gradually, as the eye is lifted, passes into a deep cloudless blue vault, continuously clear to the zenith; there the cumuli, in white fleecy masses, again appear; till, in the northern celestial hemisphere, they thicken and assume the leaden hue of nimbi, discharging their moisture on the dark forest-clad hills around. The breezes are south-easterly, bringing that vapour from the Indian Ocean, which is rarefied and suspended aloft over the heated plains, but condensed into a drizzle when it strikes the cooler flanks of the hills, and into heavy rain when it meets their still colder summits. Upon what a gigantic scale does nature here operate! Vapours, raised from an ocean whose nearest shore is more than 400 miles distant, are safely transported without the loss of one drop of water to support the rank luxuriance of this far distant region. This and other offices fulfilled, the waste waters are returned, by the Cusi and Teesta, to the ocean, and

again exhaled, exported, expanded, re-collected, and returned.

The soil and bushes everywhere swarmed with large and troublesome ants and enormous earthworms. In the evening the noise of the great *Cicada* in the trees was almost deafening. They burst suddenly into full chorus, with a voice so harshly creaking, so dissonant, and so unearthly, that in these solitary forests I could not help being startled. In general character the note was very similar to that of other *Cicada*. They ceased as suddenly as they commenced. On the following morning my baggage arrived, and, leaving my *palkee*, I mounted a pony kindly sent for me by Mr. Hodgson, and commenced a very steep ascent of about 3,000 feet, winding along the face of a steep, richly wooded valley. The road zigzags extraordinarily in and out of the innumerable lateral ravines, each with its watercourse, dense jungle, and legion of leeches; the bite of these blood-suckers gives no pain, but is followed by considerable effusion of blood. They puncture through thick worsted stockings, and even trousers, and, when full, roll in the form of a little soft ball into the bottom of the shoe, where their presence is hardly felt in walking.

Not only are the roadsides rich in plants, but native paths, cutting off all the zigzags, run in straight lines up the steepest hill-faces, and thus double the available means for botanising; and it is all but impossible to leave the paths of one kind or other, except for a yard or two up the rocky ravines. Elephants, tigers, and occasionally the rhinoceros, inhabit the foot of these hills, with wild boars, leopards, etc., but none are numerous. The elephant's path is an excellent specimen of engineering—the opposite of the native track, for it winds judiciously.

At about 1,000 feet above Punkabaree the vegetation is very rich, and appears all the more so from the many turnings of the road, affording glorious prospects of the fore-shortened tropical forests. The prevalent timber is gigantic, and scaled by climbing *Leguminosæ*, as *Bauhinias* and *Robinias*, which sometimes sheath the trunks, or span the forest with huge cables, joining tree to tree. Their trunks are also clothed with parasitical orchids, and still more beautifully with *Pothos* (*Scandapus*), Peppers, *Gnetum*, Vines, *Convolvulus*, and *Bignonia*. The beauty of the drapery of the *Pothos*-leaves is pre-eminent, whether for the graceful folds the foliage assumes, or for the liveliness of its colour. Of the more conspicuous smaller trees, the wild banana is the most abundant, its crown of very beautiful foliage contrasting with the smaller-leaved plants amongst which it nestles; next comes a screw-pipe (*Pandanus*) with a straight stem and a tuft of leaves, each eight or ten feet long, waving on all sides. *Arabaceæ*, with smooth or armed slender trunks, and *Mappa*-like *Euphorbiaceæ*, spread their long petioles horizontally forth, each terminated with an ample leaf some feet in diameter. Bamboo abounds everywhere; its dense tufts of culms, 100 feet and upwards high, are as thick as a man's thigh at the base. Twenty or thirty species of ferns (including a tree-fern) were luxuriant and handsome. Foliaceous lichens and a few mosses appeared at 2,000 feet. Such is the vegetation of the roads through the tropical forests of the Outer-Himalaya.

At about 4,000 feet the road crossed a saddle, and ran along the narrow crest of a hill, the top of that facing the plains of India, and over which is the way to the interior ranges, amongst which Darjeeling is placed, still twenty-five miles off. A little below this a great change had taken place in the vegetation—marked, first, by the appearance of a very English-looking bramble, which, however, by way of proving its foreign origin, bore a very good yellow fruit, called here the "yellow raspberry". Scattered oaks, of a noble species, with large lamellated cups and magnificent foliage, succeeded; and along the ridge of the mountain to Kurseong (a dawk bungalow at about 4,800 feet), the change in the flora was complete.

APPENDIX III—contd.

The spring of this region and elevation most vividly recalled that of England. The oak flowering, the birch bursting into leaf, the violet, *Chrysosplenium*, *Stellaria* and *Arum*, *Vaccinium*, wild strawberry, maple, geranium, bramble. A colder wind blew here; mosses and lichens carpeted the banks and roadsides; the birds and insects were very different from those below; and everything proclaimed the marked change in elevation, and not only in this, but in season, for I had left the winter of the tropics and here encountered the spring of the temperate zone.

The flowers I have mentioned are so notoriously the harbingers of a European spring that their presence carries one home at once; but, as species, they differ from their European prototypes, and are accompanied at this elevation (and for 2,000 feet higher up) with tree-fern, *Pothos*, bananas, palms, figs, pepper, numbers of epiphytel orchids, and similar genuine tropical genera. The uniform temperature and humidity of the region here favour the extension of tropical plants into a temperate region exactly as the same conditions cause similar forms to reach higher latitudes in the southern hemisphere (as in New Zealand, Tasmania, South Chib, etc.) than they do in the northern.

Along this ridge I met with the first tree-fern. This species seldom reaches the height of forty feet; the black trunk is but three or four in girth, and the feathery crown is ragged in comparison with the species of many other countries: it is the *Alsophila gigantea*, and ascends nearly to 7,000 feet elevation.

Kurseong bungalow, where I stopped for a few hours, is superbly placed, on a narrow mountain ridge. The west window looks down the valley of the Balasun river, the east into that of the Mahanuddee; both of these rise from the outer range, and flow in broad, deep, and steep valleys (about 4,000 feet deep) which give them their respective names, and are richly wooded from the Terai to their tops. Till reaching this spur, I had wound upwards along the western slope of the Mahanuddee valley. The ascent from the spur at Kurseong to the top of the mountain (on the northern face of which Darjeeling is situated) is along the eastern slope of the Balasun.

From Kurseong a very steep zigzag leads up the mountain, through a magnificent forest of chestnut, walnut, oaks, and laurels. It is difficult to conceive a grander mass of vegetation—the straight shafts of the timber-trees shooting aloft, some naked and clean, with grey, pale, or brown bark; others literally clothed for yards with a continuous garment of epiphytes, one mass of blossoms, especially the white Orchids *Coelogynes*, which bloom in a profuse manner, whitening their trunks like snow. More bulky trunks bore masses of interlacing, climber, *Araliaceæ*, *Leguminosæ*, Vines, and *Menispermææ* Hydrangea, and Peppers, enclosing a hollow, once filled by the now strangled supporting tree which had long ago decayed away. From the sides and summit of these, supple branches hung forth, either leafy or naked; the latter resembling cables, flung from one tree to another, swinging in the breeze, their rocking motion increased by the weight of great bunches of ferns or Orchids, which were perched aloft in the loops. Perpetual moisture nourishes this dripping forest, and pendulous mosses and lichens are met with in profusion.

Two thousand feet higher up, near Mahaldiram (whence the last view of the plains is gained), European plants appear—Berberry, Paris, etc.; but here night gathered round, and I had still ten miles to go to the nearest bungalow, that of Pacheem. The road still led along the eastern slope of the Balasun Valley, which was exceedingly steep, and so cut up by ravines, that it winds in and out of gulleys almost narrow enough to be jumped across.

It was very late before I arrived at Pacheem bungalow, the most sinister-looking rest-house I ever saw, stuck on

a little cleared spur of the mountain, surrounded by dark forests, overhanging a profound valley, and enveloped in mists and rain, and hideous in architecture, being a miserable attempt to unite the Swiss cottage with the suburban gothic; it combined a maximum of discomfort with a minimum of good looks or good cheer. I was some time in finding the dirty housekeeper, in an out-house hard by, and then in waking him. As he led me up the crazy verandah, and into a broad ghostly room, without glass in the windows, or fire, or any one comfort, my mind recurred to the stories told of the horrors of the Hartz forest, and of the benighted traveller's situation therein. Cold sluggish beetles hung to the damp walls—and these I immediately secured. After due exertions and perseverance with the damp wood, a fire smoked lustily, and, by cajoling the gnome of a house-keeper, I procured the usual roast fowl and potatoes, with the accustomed sauce of a strong smoky and singed flavour.*

Pacheem stands at an elevation of nearly 7,300 feet, and as I walked out on the following morning I met with English-looking plants in abundance, but was too early in the season to get aught but the foliage of most. *Chrysosplenium*, violet, *Lobelia*, a small geranium, strawberry, five or six kinds of bramble, *Arum*, *Paris*, *Convallaria*, *Stellaria*, *Rubia*, *Vaccinium*, and various *Gnaphalia*. Of small bushes, cornels, honeysuckles, and the ivy tribe predominated, with *Symplocos* and *Skimmia*, *Eurya*, bushy brambles, having simple or compound green or beautifully silky foliage; *Hypericum*, *Berberis*, *Hydrangea*, *Wormwood*, *Adamia cyanea*, *Viburnum*, *Elder*, dwarf bamboo, etc.

The climbing plants were still *Panax* or *Aralia*, *Kadsura*, *Saurauja*, *Hydrangea*, Vines, *Smilax*, *Ampelopsis*, *Polygona*, and most beautiful of all, *Stauntonia*, with pendulous racemes of lilac blossoms. Epiphytes were rarer, still I found white and purple *Coelogynes*, and other Orchids, and a most noble white *Rhododendron*, whose truly enormous and delicious lemon-scented blossoms strewed the ground. The trees were one half oaks, one quarter *Magnolias*, and nearly another quarter laurels, amongst which grew Himalayan kinds of birch, alder, maple, holly, bird-cherry, common cherry, and apple. The absence of *Leguminosæ* was most remarkable, and the most prominent botanical feature in the vegetation of this region, it is too high for the tropical tribes of the warmer elevations, too low for the Alpines, and probably too moist for those of temperate regions; cool, equable, humid climates being generally unfavourable to that order. *Clematis* was rare, and other *Ranunculaceæ* still more so. *Cruciferae* were absent, and, what was still more remarkable, I found very few native species of grasses. Both *Poa annua* and white Dutch clover flourished where accidentally disseminated, but only in artificially cleared spots. Of ferns I collected about sixty species, chiefly of temperate genera. The supremacy of this temperate region consists in the infinite number of forest trees, in the absence (in the usual proportion, at any rate) of such common orders as *Compositæ*, *Leguminosæ*, *Cruciferae*, and *Ranunculaceæ*, and of Grasses amongst Monocotyledons, and in the predominance of the rarer and more local families, as those of *Rhododendron*, *Camellia*, *Magnolia*, *Ivy*, *Cornel*, *Honeysuckle*, *Hydrangea*, *Begonia*, and Epiphytic orchids.

From Pacheem the road runs in a northerly direction to Darjeeling, still along the Balasun valley, till the saddle of the great mountain Sinchul is crossed. This is narrow, stretching east and west, and from it a spur projects northwards for five or six miles, amongst the many mountains still intervening between it and the snows. This saddle (alt. 7,400 feet) crossed, one is fairly amongst the mountains; the plains behind are cut off by it; and in front the snows may be seen when the

*Since writing the above a comfortable house has been erected at Senadah, the name now given to what was called Pacheem Bungalow.

APPENDIX III—*contd.*

weather is propitious. The valleys on this side of the mountain run northwards, and discharge their streams into great rivers, which, coming from the snow, wind amongst the hills, and debouch into the Teesta, to the east, where it divides Sikkim from Bhotan.

Darjeeling station occupies a narrow ridge, which divides into two spurs, descending steeply to the bed of the Great Rungeet river, up whose course the eye is carried to the base of the great snowy mountains. The ridge itself is very narrow at the top, along which most of the houses are perched, while others occupy positions on its flanks, where narrow *locations* on the east, and broader ones on the west, are cleared from wood. The valleys on either side are at least 6,000 feet deep, forest-clad to the bottom, with very few and small level spots, and no absolute precipices, from their flanks project innumerable little spurs, occupied by native clearings.

My route lay along the east flank, overhanging the valley of the Rungeet river. Looking east, the amphitheatre of hills from the ridge I had crossed was very fine; enclosing an area some four miles across and 4,000 feet deep; clothed throughout with an impenetrable, dark forest: there was not one clear patch except near the very bottom, where were some scattered hamlets of two or three huts each. The rock is everywhere near the surface, and the road has been formed by blasting at very many places. A wooded slope descends suddenly from the edge of the road, while, on the other hand, a bank rises abruptly to the top of the ridge, alternately mossy, rocky, and clayey, and presenting a good geological section all the way along, of the nucleus of Darjeeling spur, exposing broken masses of gneiss. As I descended I came upon the upper limit of the chestnut, a tree second in abundance to the oak, gigantic, tall, and straight in the trunk.

I arrived at Darjeeling on the 16th of April; a showery, cold month at this elevation. I was so fortunate as to find Mr. Charles Barnes (brother of my friend at Colong), the sole tenant of a long, cottage-like building, divided off into pairs of apartments, which are hired by visitors. It is usual for Europeans to bring a full establishment of servants (with bedding, etc.), to such stations, but I had not done so, having been told that there was a furnished hotel in Darjeeling; and I was, therefore, not a little indebted to Mr. Barnes for his kind invitation to join his mess. As he was an active mountaineer, we enjoyed many excursions together, in the two months and a half during which we were companions.

Dr. Campbell procured me several active native (Lepcha) lads as collectors, at wages varying from eight to twenty shillings a month; these either accompanied me on my excursions, or went by themselves into the jungles to collect plants, which I occupied myself in drawing, dissecting, and ticketing: while the preserving of them fell to the Lepchas, who, after a little training, became, with constant superintendence, good plant-driers. Even at this season (four weeks before the setting in of the rains) the weather was very uncertain, so that the papers had generally to be dried by the fire.

The hill-station or Sanitarium of Darjeeling owes its origin (like Simla, Mussooree, etc.) to the necessity that exists in India of providing places where the health of Europeans may be recruited by a more temperate climate. Sikkim proved an eligible position for such an establishment, owing to its proximity to Calcutta, which lies but 370 miles to the southward; whereas the north-west stations mentioned above are upwards of a thousand miles from the city. Darjeeling ridge varies in height from 6,500 to 7,500 feet above the level of the sea; 8,000 feet being the elevation at which the mean temperature most nearly coincides with that of London, viz., 50°.

Sikkim was, further, the only available spot for a Sanitarium throughout the whole range of the Himalaya, east of the extreme western frontier of Nepal; being a protected State, and owing no allegiance, except to the

British Government; which, after the Rajah had been driven from the country by the Ghorkas, in 1817, replaced him on his throne, and guaranteed him the sovereignty. Our main object in doing this was to retain Sikkim as a fender between Nepal and Bhotan; and but for this policy the aggressive Nepalese would, long ere this, have possessed themselves of Sikkim, Bhotan, and the whole Himalaya, eastwards to the borders of Burmah.*

From 1817 to 1828 no notice was taken in Sikkim, till a frontier dispute occurred between the Lepchas and Nepalese, which was referred (according to the terms of the treaty) to the British Government. During arrangement of this, Darjeeling was visited by a gentleman of high scientific attainments. Mr. J. W. Grant, who pointed out its eligibility as a site for a Sanitarium to Lord William Bentinck, then Governor-General; dwelling especially upon its climate, proximity to Calcutta, and accessibility on its central position between Tibet, Bhotan, Nepal and British India; and on the good example a peaceably-conducted and well-governed station would be to our turbulent neighbours in that quarter. The suggestion was cordially received, and Major Herbert (the late eminent Surveyor-General of India) and Mr. Grant were employed to report further on the subject.

The next step taken was that of requesting the Rajah to cede a tract of country which should include Darjeeling, for an equivalent in money or land. His first demand was unreasonable; but on further consideration he surrendered Darjeeling unconditionally, and a sum of £300 per annum was granted to him as an equivalent for what was then a worthless uninhabited mountain. In 1840 Dr. Campbell was removed from Nepal as Superintendent of the new station, and was entrusted with the charge of the political relations between the British and Sikkim Government.

Once established, Darjeeling rapidly increased. Allotments of land were purchased by Europeans for building dwelling-houses; barracks and a bazar were formed, with accommodation for invalid European soldiers; a few official residents, civil and military, formed the nucleus of a community, which was increased by retired officers and their families, and by temporary visitors in search of health, or the luxury of a cool climate and active exercise.

For the first few years matters went on smoothly with the Rajah, whose minister (or Dewan) was upright and intelligent; but the latter, on his death, was succeeded by the present Dewan, a Tibetan, and a relative of the Ranee (or Rajah's wife); a man unsurpassed for insolence and avarice, whose aim was to monopolise the trade of the country, and to enrich himself at its expense. Every obstacle was thrown by him in the way of a good understanding between Sikkim and the British Government. British subjects were rigorously excluded from Sikkim; every liberal offer for free trade and intercourse was rejected, generally with insolence; merchandise was taxed, and notorious offenders, refugees from the British territories, were harboured; despatches were detained; and the Vakeels, or Rajah's representatives, were chosen for their insolence and incapacity. The conduct of the Dewan throughout was Indo-Chinese; assuming insolent, aggressive, never perpetrating open violence, but by petty insults effectually preventing all good understanding. He was met by neglect or forbearance on the part of the Calcutta Government, and by patience and passive resistance at Darjeeling. Our inaction and long-suffering were taken for weakness, and our concessions for timidity. Such has been our policy

*Of such being their wish the Nepalese have never made any secret, and they are said to have asked permission from the British to march any army across Sikkim for the purpose of conquering Bhotan, offering to become more peaceable neighbours to us than the Bhotanese are. Such they would doubtless have proved, but the Nepal frontier is considered broad enough already.

APPENDIX III—*contd.*

in China, Siam and Burmah, and in each instance the result has been the same. Had it been insisted that the terms of the treaty should be strictly kept, and had the first act of insolence been noticed, we should have maintained the best relations with Sikkim, whose people and rulers (with the exception of the Dewan and his faction) have proved themselves friendly throughout, and most anxious for unrestricted communication.

These political matters have not, however, prevented the rapid increase of Darjeeling; the progress of which, during the two years I spent in Sikkim, resembled that of an Australian colony, not only in amount of building, but in the accession of native families from the surrounding countries. There were not a hundred inhabitants under British protection when the ground was transferred; there are now four thousand. At the former period there was no trade whatever; there is now a very considerable one, in musk, salt, gold-dust, borax, soda, woollen cloths, and especially in ponies, of which the Dewan in one year brought on his own account upwards of fifty into Darjeeling*. The trade has been greatly increased by the annual fair which Dr. Campbell has established at the foot of the hills, to which many thousands of natives flock from all quarters, and which exercises a most beneficial influence throughout the neighbouring territories. At this, prizes (in medals, money and kind) are given for agricultural implements and produce, stock, etc., by the originator and a few friends; a measure attended with eminent success.

In estimating in a sanitary point of view the value of any health-station, little reliance can be placed on the general impressions of invalids, or even of residents; the opinion of each varies with the nature and state of his complaint, if ill, or with his idiosyncrasy and disposition, if well. I have seen prejudiced invalids rapidly recovering, in spite of themselves, and all the while complaining in unmeasured terms of the climate of Darjeeling, and abusing it as killing them. Other are known who languish under the heat of the plains at one season, and the damp at another; and who, though sickening and dying under its influence, yet consistently praise a tropical climate to the last. The opinions of those who resort to Darjeeling in health, differ equally; those of active minds invariably thoroughly enjoy it, while the mere loungee or sportsman mopes. The statistical tables afford conclusive proofs of the value of the climate to Europeans suffering from acute diseases, and they are corroborated by the returns of the medical officer in charge of the station. With respect to its suitability to the European constitution I feel satisfied, and that much saving of life, health and money would be effected were European troops drafted thither on their arrival in Bengal, instead of being stationed in Calcutta, exposed to disease, and temptation to those vices which prove fatal to so many hundreds. This I have been given to understand, was the view originally taken by the Court of Directors, but it has never been carried out.

I believe that children's faces afford us good an index as any to the healthfulness of climate, and in no part of the world is there a more active, rosy and bright young community than at Darjeeling. It is incredible what a few weeks of that mountain air does for the Indian-born children of European parents: they are taken there sickly, pallid or yellow, soft and flabby, to become transformed into models of rude health and activity.

There are, however, disorders to which the climate (in common with all damp ones) is not at all suited; such are especially dysentery, bowel complaints and liver

complaints of long standing; which are not benefited by a residence on these hills, though how much worse they might have become in the plains is not shown. I cannot hear that the climate aggravates, but it certainly does not remove them. Whoever is suffering from the debilitating effects of any of the multifarious acute maladies of the plains, finds instant relief, and acquires a stock of health that enables him to resist fresh attacks, under circumstances similar to those which before engendered them.

Natives of the low country, and especially Bengalees, are far from enjoying the climate as Europeans do, being liable to sharp attacks of fever and ague, from which the poorly clad natives are not exempt. It is, however, difficult to estimate the effects of exposure upon the Bengalees, who sleep on the bare and often damp ground, and adhere, with characteristic prejudice, to the attire of a torrid climate, and to a vegetable diet, under skies to which these are least of all adapted.

It must not be supposed that Europeans who have resided in plains can, on their first arrival, expose themselves with impunity to the cold of these elevations; this was shown in the winter of 1848 and 1849, when troops brought up to Darjeeling were cantoned in newly-built dwellings, on a high exposed ridge 8,000 feet above the sea, and lay, insufficiently protected, on a floor of loosely laid planks, exposed to the cold wind, when the ground without was covered with snow. Rheumatisms, sharp febrile attacks, and dysenteries ensued, which were attributed in the public prints to the unhealthy nature of the climate of Darjeeling.

The following summary of hospital admissions affords the best test of the healthiness of the climate, embracing, as the period does, the three most fatal months to European troops in India. Out of a detachment (105 strong) of H.M. 8th Regiment stationed at Darjeeling, in the seven months from January to July inclusive, there were sixty-four admissions to the hospital, or, on the average 4-1/3rd per cent. per month; and only two deaths, both of dysentery. Many of these men had suffered frequently in the plains from acute dysentery and hepatic affections, and many others had aggravated these complaints by excessive drinking, and two were cases of delirium tremens. During the same period, the number of entries at Calcutta or Dinapore would probably have more than trebled this.

CHAPTER V

View from Mr. Hodgson's of range of snowy mountains—Their extent and elevation—Delusive appearance of elevation—Sinchul, view from and vegetation of—Chumulari—Magnolias, white and purple—Rhododendron Dalhousii, arboreum and argenteum—Natives of Darjeeling—Lepchas, origin, tradition of flood, morals, dress, arms, ornaments, diet—cups, origin and value—Marriages—Diseases—Burial—Worship and religion—Bijooas—Kampa Rong, or Arratt—Limboos, origin, habits, language, etc.—Moormis—Magras—Mechis—Comparison of customs with those of the natives of Assam, Khasia, etc.

The summer, or rainy season of 1848, was passed at or near Darjeeling, during which period I chiefly occupied myself in forming collections, and in taking meteorological observations. I resided at Mr. Hodgson's for the greater part of the time, in consequence of his having given me a hospitable invitation to consider his house my home. The view from his windows is one quite unparalleled from the scenery it embraces, commanding confessedly the grandest known landscape of snowy mountains in the Himalaya, and hence in the world. Kinchinjunga (forty-five miles distant) is the prominent object, rising 21,000 feet above the level of the observer out of a sea of intervening wooded hills; whilst, on a line with its snows, the eye descends below the horizon,

*The Tibetan pony, though born and bred 10,000 to 14,000 feet above the sea, is one of the most active and useful animals in the plains of Bengal, powerful and hardy, and when well trained early, docile, although by nature vicious and obstinate.

APPENDIX III—contd.

to a narrow gulf 7,000 feet deep in the mountains, where the Great Rungeet, white with foam, threads a tropical forest with a silver line.

To the north-west towards Nepal, the snowy peaks of Kubra and Junnoo (respectively 24,005 feet and 25,312 feet) rise over the shoulder of Singalelah; whilst eastward the snowy mountains appear to form an unbroken range, trending north-east to the great mass of Donkia (23,176 feet) and thence south-east by the fingered peaks of Tunkola and the silver cone of Chola (17,320 feet), gradually sinking into the Bhotan mountains at Gipmoochi (14,509 feet).

The most eloquent descriptions I have read fail to convey to my mind's eye the forms and colours of snowy mountains, or to my imagination the sensations and impressions that rivet my attention to these sublime phenomena when they are present in reality; and I shall not therefore obtrude any attempt of the kind upon my reader. The latter has probably seen the Swiss Alps, which, though barely possessing half the sublimity, extent, or height of the Himalaya, are yet far more beautiful. In either case he is struck with the precision and sharpness of their outlines and still more with the wonderful play of colours on their snowy flanks from the glowing hues reflected in orange, gold and ruby, from clouds illumined by the sinking or rising sun, to the ghastly pallor that succeeds with twilight, when the red seems to give place to its complementary colour green. Such dissolving-views elude all attempts at description, they are far too aerial to be chained to the memory, and fade from it so fast as to be gazed upon day after day, with undiminished admiration and pleasure, long after the mountains themselves have lost their sublimity and apparent height.

The actual extent of the snowy range seen from Mr. Hodgson's windows is comprised within an arc of 80° (from north 30° west to north 50° east), or nearly a quarter of the horizon, along which the perpetual snow forms an unbroken girdle or crest of forested silver; and in winter, when the mountains are covered down to 8,000 feet, this white ridge stretches uninterruptedly for more than 160°. No known view is to be compared with this in extent, when the proximity and height of the mountains are considered; for within the 80° above-mentioned more than twelve peaks rise above 20,000 feet, and there are none below 15,000 feet, while Kinchin is 28,178 and seven others above 22,000. The nearest perpetual snow is on Nursing, a beautifully sharp conical peak 19,139 feet high, and thirty-two miles distant; the most remote mountain seen in Donkia, 23,176 feet high, and seventy-three miles distant; whilst Kinchin, which forms the principal mass both for height and bulk, is exactly forty-five miles distant.

On first viewing this glorious panorama, the impression produced on the imagination by their prodigious elevation is, that the peaks tower in the air and pierce the clouds, and such are the terms generally used in descriptions of similar alpine scenery; but the observer, if he look again, will find that even the most stupendous occupy a very low position on the horizon, the top of Kinchin itself measuring only 4° 31' above the level of the observer! Donkia again, which is 23,176 feet above the sea, or about 15,700 above Mr. Hodgson's rises only 1° 55' above the horizon; an angle which is quite inappreciable to the eye, when unaided by instruments.*

This view may be extended a little by ascending Sinchul, which rises a thousand feet above the elevation of Mr. Hodgson's house, and is a few miles south-east of Darjeeling: from its summit Chumulari (23,929 feet) is seen to the north-east, at eighty-four miles distance,

*These are the apparent angles which I took from Mr. Hodgson's house (alt. 7,300 feet) with an excellent theodolite, no deduction being made for refraction.

rearing its head as a great rounded mass over the snowy Chola range, out of which it appears to rise, although in reality lying forty miles beyond;—so deceptive is the perspective of snowy mountains. To the north-west again, at upwards of 100 miles distance, a beautiful group of snowy mountains rises above the black Singalelah range, the chief being, perhaps, as high as Kinchinjunga, from which it is fully eighty miles distant to the westward; and between them no mountain of considerable altitude intervenes; the Nepalese Himalaya in that direction sinking remarkably towards the Arun river, which there enters Nepal from Tibet.

The top of Sinchul is a favourite excursion from Darjeeling, being very easy of access, and the path abounding in rare and beautiful plants, and passing through magnificent forests of oak, magnolia and rhododendron; while the summit, besides embracing this splendid view of the snowy range over the Darjeeling spur in the foreground, commands also the plains of India, with the course of the Teesta, Mahanuddee, Balasun and Mechi rivers. In the months of April and May, when the magnolias and rhododendrons are in blossom, the gorgeous vegetation is, in some respects, not to be surpassed by anything in the tropics; but the effect is much marred by the prevailing gloom of the weather. The white-flowered magnolia (*M. excelsa*, Wall), forms a predominant tree at 7,000 to 8,000 feet; and in 1848 it blossomed so profusely, that the forests on the broad flanks of Sinchul, and other mountains of that elevation, appeared as if sprinkled with snow. The purple-flowered kind again (*M. Campbellii*) hardly occurs below 8,000 feet, and forms an immense, but very ugly, black-bark, sparingly branched tree, leafless in winter and also during the flowering season, when it puts forth from the ends of its branches great rose-purple cup-shaped flowers, whose fleshy petals strew the ground. On its branches and on those of oaks and laurels, *Rhododendron Dalhousiae* grows epiphytically, a slender shrub, bearing from three to six white lemon-scented bells, four and a half inches long and as many broad at the end of each branch. In the same woods the scarlet rhododendron (*R. arboreum*) is very scarce, and is outvied by the great *R. argenteum*, which grows as a tree forty feet high, with magnificent leaved twelve to fifteen inches long, deep green, wrinkled above the silvery below, while the flowers are as large as those of *R. Dalhousiae*, and grow more in a cluster. I know nothing of the kind that exceeds in beauty the flowering branch of *R. argenteum*, with its wide spreading foliage and glorious mass of flowers.

Oaks, laurels, maples, birch, chestnut, hydrangea, a species of fig (which is found on the very summit), and three Chinese and Japanese genera, are the principal features of the forest; the common bushes being *Aucuba*, *Skimmia* and the curious *Hellebrigia*, which bears little clusters of flowers on the centre of the leaf, like butcher's-broom. In spring immense broad-leaved arums spring up, with green or purple-striped hoods, that end in tail-like threads, eighteen inches long, which lie along the ground; and there are various kinds of *Convallaria*, *Paris*, *Begonia*, and other beautiful flowering herbs. Nearly thirty ferns may be gathered on this excursion, including many of great beauty and rarity, but the three-fern does not ascend so high. Grasses are very rare in these woods, excepting the dwarf bamboo, now cultivated in the open air in England.

Before proceeding to narrate my different expeditions into Sikkim and Nepal from Darjeeling, I shall give a sketch of the different peoples and races composing the heterogeneous population of Sikkim and the neighbouring mountains.

The Lepcha is the aboriginal inhabitant of Sikkim, and the prominent character in Darjeeling, where he undertakes all sorts of outdoor employment. The race to which he belongs is a very singular one; markedly

APPENDIX III—*contd.*

Mongolian in features, and a good deal too, by imitation, in habit; still he differs from his Tibetan prototype, though not so decidedly as from the Nepalese and Bhotanese, between whom he is hemmed into a narrow tract of mountain country, barely 60 miles in breadth. The Lepchas possess a tradition of the flood, during which a couple escaped to the top of a mountain (Tendong) near Darjeeling. The earliest traditions which they have of their history date no further back than some three hundred years, when they describe themselves as having been long-haired, half-clad savages. At about that period they were visited by Tibetans, who introduced Boodh worship, the platting of their hair into pig-tails, and very many of their own custom. Their physiognomy is, however, so Tibetan in its character, that it cannot be supposed that this was their earliest intercourse with the trans-hivean races; whether they may have wandered from beyond the snows before the spread of Boodhism and its civilisation, or whether they are a cross between the Tamulian of India and the Tibetan, has not been decided. Their language, though radically identical with Tibetan, differs from it in many important particulars. They, or at least some of their tribes, call themselves Rong, and Arratt, and their country Dijong: they once possessed a great part of East Nepal, as far west as the Tambur river, and at a still earlier period they penetrated as far west as the Arun river.

An attentive examination of the Lepcha in one respect entirely contradicts our preconceived notions of a mountaineer, as he is timid, peaceful, and no brawler; qualities which are all the more remarkable from contrasting so strongly with those of his neighbours to the east and west: of whom the Ghorkas are brave and warlike to a proverb, and the Bhotanese quarrelsome, cowardly, cruel. A group of Lepchas is exceedingly picturesque. They are of short stature—four feet eight inches to five feet—rather broad in the chest, and with muscular arms, but small hands and slender wrist*. The face is broad, flat, and of eminently Tartar character, flat-nosed and oblique-eyed, with no beard, and little moustache; the complexion is sallow, or often a clear olive; the hair is collected into an immense tail, platted flat or round. The lower limbs are powerfully developed, befitting genuine mountaineers: the feet are small. Though never really handsome, and very womanish in the cast of countenance, they have invariably a mind, frank, and even engaging expression, which I have in vain sought to analyse, and which is perhaps due more to the absence of anything unpleasant, than to the presence of direct grace or beauty. In like manner, the girls are often very engaging to look upon, though without one good feature: they are all smiles and good-nature; and the children are frank, lively, laughing urchins. The old women are thorough hags. Indolence, when left to themselves, is their besetting sin; they detest any fixed employment, and their foulness of person and garments renders them disagreeable inmates: in this rainy climate they are supportable out of doors. Though fond of bathing when they come to a stream in hot weather, and expert, even admirable swimmers, these people never take to the water for the purpose of ablution. In disposition they are amiable and obliging, frank, humorous, and polite, without the servility of the Hindoos; and their address is free and unconstrained. Their intercourse with one another and with Europeans is scrupulously honest; a present is divided equally amongst many, without a syllable of discontent or grudging look or word: each, on receiving his share, coming up and giving the donor a brusque bow and thanks.

*I have seldom been able to insert my own wrist (which is smaller than the average) into the wooden guard which the Lepcha wears on his left, as a protection against the bow-string: it is a curved ring of wood with an opening at one side, through which, by a little stretching, the wrist is inserted.

They have learnt to overcharge already, and use extortion in dealing, as is the custom with the people of the plains; but it is clumsily done, and never accompanied with the grasping air and insufferable whine of the latter. They are constantly armed with a long, heavy, straight knife,* but never draw it on one another: family and political feuds are alike unheard of amongst them.

The Lepcha is in moral far superior to his Tibet and Bhotan neighbours, polyandry being unknown, and polygamy rare. This is no doubt greatly due to the conventual system not being carried to such an excess as in Bhotan, where the ties of relationship even are disregarded.

Like the New Zealander, Tasmanian, Fuegian, and natives of other climates, which, though cold, are moist and equable, the Lepcha's dress is very scanty, and when we are wearing woollen under-garments and hose, he is content with one cotton vesture, which is loosely thrown round the body, leaving one or both arms free; it reaches to the knee, and is gathered round the waist: its fabric is close, the ground colour white, ornamented with longitudinal blue stripes, two or three fingers broad, prettily worked with red and white. When new and clean this grab is remarkably handsome and gay, but not showy. In cold weather an upper garment with loose sleeves is added. A long knife, with a common wooden handle, hangs by the side, stuck in a sheath; he has often also a quiver of poisoned arrows and a bamboo bow across his back. On his left wrist is a curious wooden guard for the bowstring; and a little pouch, containing aconite poison and a few common implements, is suspended to his girdle. A hat he seldom wears, and when he does, it is often extravagantly broad and flat-brimmed, with a small hemispherical crown. It is made of leaves of *Scitaminea*, between two thin plates of bamboo-work, clumsy and heavy; this generally used in the rainy weather, while in the dry a conical one is worn, also of platted slips of bamboo, with broad flakes of tale between the layers, and of a peacock's feather at the side. The umbrella consists of a large hood, much like the ancient boat called a coracle, which being placed over the head reaches to the thighs behind. It is made of platted bamboo enclosing broad leaves of *Phrynium*. A group of Lepchas with these on, running along in the pelting rain, are very droll figures; they look like snails with their shells on their backs. All the Lepchas are fond of ornaments, wearing silver hoops in their ears, necklaces made of cornelian, amber and turquoise, brought from Tibet, and pearls and corals from the south, with curious silver and golden charm-boxes or amulets attached to their necks or arms. These are of Tibetan workmanship, and often of great value; they contain little idols, charms, and written prayers, or the bones, hair, or nail-parings of a Lama: some are of great beauty, and highly ornamented. In these decorations, and in their hair, they take some pride, the ladies frequently dressing the latter for the gentlemen: thus one may often see, the last thing at night, a damsel of discreet port, demurely go behind a young man, unplat his pig-tail, tease the hair, thin it of some of its lively inmates, braid it up for him, and retire. The women always wear two braided pig-tails, and it is by this they are most readily distinguished from their effeminate-looking partners, who wear only one.† When in full dress, the woman's costume is extremely ornamental and picturesque; besides the shirt and petticoat she wears a small sleeveless woollen cloak,

*It is called "Ban," and serves equally for plough, toothpick, table-knife, hatchet, hammer, and sword.

†The bamboo, of which the quiver is made, is thin and light: it is brought from Assam, and called Tulda, or Dulwa, by the Bengalees.

‡Ermann (*Travels in Siberia*, ii. p. 204) mentions the Buract women as wearing two tails, and fillets with jewels, and the men as having one queue only.

APPENDIX III—contd.

or gay pattern, usually covered with crosses, and fastened in front by a girdle of silver chains. Her neck is loaded with silver chains, amber necklaces, etc., and her head adorned with a coronet of scarlet cloth, studded with seed-pearls, jewels, glass beads, etc. The common dress is a long robe of *indi*, a cloth of coarse silk, spun from the cocoon of a large caterpillar that is found wild at the foot of the hills, and is also cultivated; it feeds on many different leaves—*Sal* (*Shorea*), castor-oil, etc.

In diet they are gross feeders;† rice, however, forming their chief sustenance; it is grown without irrigation, and produces a large, flat, coarse grain, which becomes gelatinous, and often pink, when cooked. Pork is a staple dish and they also eat elephant, and all kinds of animal food. When travelling, they live on whatever they can find, whether animal or vegetable. Fern-tops, roots of *Scitumner*, and their flower-buds, various leaves (it is difficult to say what not) and fungi, are chopped up, fried with a little oil, and eaten. The cooking is coarse and dirty. Salt is costly, but prized; Pawn (*Betal-pepper*) is never eaten. Tobacco they are too poor to buy, and too indolent to grow and cure. Spices, oil, etc., are relished.

They drink out of little wooden cups, turned from knots of maple or other woods; these are very curious on several accounts; they are very pretty, often polished, and mounted with silver. Some are supposed to be antidotes against poison, and hence fetch an enormous price; they are of a peculiar wood, rarer and paler-coloured. I have paid, a guinea for one such, hardly different from the common sort, which cost but 4d or 6d. MM. Hue and Gabot graphically allude to this circumstance, when wishing to purchase cups at Lhasa, where their price is higher, as they are all imported from the Himalaya. The knots from which they are formed are produced on the roots of oaks, maples, and other mountain forest trees, by a parasitical plant known to botanists as *Balanophora*.

Their intoxicating drink, which seems more to excite than to debase the mind, is partially fermented Murwa grain (*Eleusine Coracana*). Spirits are rather too strong to be relished raw, and when a glass of wine is given to one of a party, he sips it, and hands it round to all the rest. A long bamboo flute, with four or six burnt holes far below the mouth-hole, is the only musical instrument I have seen in use among them. When travelling, and the fatigues of the day are over, the Lepchas will sit for hours chatting, telling stories, singing in a monotonous tone, or blowing this flute. I have often listened with real pleasure to the simple music of this rude instrument; its low and sweet tones are singularly *Æolian*, as are the airs usually played, which fall by octaves: it seems to harmonise with the solitude of their primeval forests and he must have a dull ear who cannot draw from it the indication of a contented mind, whether he may relish its soft musical notes or not. Though always equipped for the chase, I fancy the Lepcha is no great sportsman; there is little to be pursued in this region and he is not driven by necessity to follow what there is.

Their marriages are contracted in childhood, and the wife purchased by money, or by service rendered to the future father-in-law, the parties being often united before the woman leaves her parent's roof, in cases where the payment is not forthcoming, and the bridegroom prefers giving his and his wife's labour to the father for a stated period in lieu. On the time of service expiring, or the money being paid up, the marriage is publicly celebrated by feasting and riot. The females are generally chaste,

and the marriage-tie is strictly kept, its violation being heavily punished by divorce, beating, slavery, etc. In cases of intermarriage with foreigners, the children belong to the father's country. All the labours of the house, the field and march devolve on the women and children, or slaves if they have them.

Small-pox is dreaded, and infected persons often cruelly shunned: a suspicion of this or of cholera frequently emptying a village or town in a night. Vaccination has been introduced by Dr. Pearson, and it is much practised by Dr. Campbell; it being eagerly sought. Cholera is scarcely known at Darjeeling, and when it has been imported thither has never spread. Disease is very rare amongst the Lepchas; and ophthalmia, elephantiasis and leprosy, the scourges of hot climates, are rarely known. Goitre prevails,* though not so conspicuously as amongst Bhotceas, Bhotanese and others. Rheumatism is frequent, and intermittent fevers, with ague; also violent and often fatal remittents, almost invariably induced by sleeping in the hot valleys, especially at the beginning and end of the rains. The European complaints of liver and bowel disease are all but unknown. Death is regarded with horror. The dead are burnt or buried, sometimes both; much depending on custom and position. Omens are sought in the entrails of fowls, etc., and other vestiges of their savage origin are still preserved, though now gradually disappearing.

The Lepchas profess no religion, though acknowledging the existence of good and bad spirits. To the good they pay no heed; "Why should we?" they say, "the good spirits do us no harm; the evil spirits, who dwell in every rock, grove, or mountain, are constantly at mischief, and to them we must pray, for they hurt us". Every tribe has a priest-doctor, he neither knows nor attempts to practise the healing art, but is a pure exorcist, all bodily ailments being deemed the operations of devils, who are cast out by prayers and invocations. Still they acknowledge the Lamas to be very holy men, and were the latter only moderately active, they would soon convert all the Lepchas. Their priests are called "Bijooas", they profess mendicancy, and seem intermediate between the begging friars of Tibet, whose dress and attributes they assume, and the exorcists of the aboriginal Lepchas: they sing, dance (masked and draped like harlequins), beg, bless, curse, and are merry mountebanks; those that affect more of the Lama Buddhist carry the "Mani," or revolving praying machine, and wear rosaries and amulets; other again are all tatters and rags. They are often employed to carry messages, and to transact little knaveries. The natives stand in some awe of them, and being besides of a generous disposition, keep the wallet of the Bijooa always full.

Such are some of the prominent features of this people, who inhabit the sub-Himalayas, between the Nepalese and

†Dr. Campbell's definition of the Lepcha's *Flora cibaria*, is, that he eats, or must have eaten, everything soft enough to chew; for, as he knows whatever is poisonous, he must have tried all; his knowledge being wholly empirical.

*May not the use of the head instead of the shoulder-strap in carrying loads be a predisposing cause of goitre, by inducing congestion of the laryngeal vessel? The Lepcha is certainly far more free from this disease than any of the tribes of E. Nepal I have mixed with, and he is both more idle and less addicted to the head-strap as a porter. I have seen it to be almost universal in some villages of Bhotceas, where the head-strap alone is used in both summer and winter crops; as also amongst the salt-traders, or rather those families who carry the salt from the passes to the Nepalese villages, and who very frequently have no shoulder-straps, but invariably head-bands. I am far from attributing all goitre, even in the mountains, to this practice, but I think it is proved, that the disease is most prevalent in the mountainous regions of both the old and new world, and that in these the practice of supporting enormous loads by the cervical muscles is frequent. It is also found in the Himalayan sheep and goats which accompany the salt-traders, and whose loads are supported in ascending by a band passing under the throat.

APPENDIX III—contd.

Bhotan frontiers, at elevations of 3,000 to 6,000 feet. In their relations with us, they are conspicuous for their honesty, their power as carriers and mountaineers, and their skill as woodsmen; for they build a waterproof house, with a thatch of banana leaves in the lower, or of bamboo in the elevated regions, and equip it with a table and bedsteads for three persons, in an hour, using no implement but their heavy knife. Kindness and good humour soon attach them to your person and service. A gloomy-tempered or morose master they avoid, and unkind one they flee. If they serve a good hillsmen like themselves, they will follow him with alacrity, sleep on the cold, bleak mountain exposed to the pitiless rain, without a murmur, lay down the heavy burden to carry their master over a stream, or give him a helping hand up a rock or precipice—do anything, in short, but encounter a foe, for I believe the Lepcha to be a veritable coward.† It is well, perhaps, he is so: for if a race, numerically so weak, were to embroil itself by resenting the injuries of the warlike Ghorkas, or dark Bhotanese, the folly would soon lead to destruction.

Before leaving the Lepchas, it may be worth mentioning that the northern parts of the country, towards the Tibet frontier, are inhabited by Sikkim Bhotecas* (or Kumpas), a mixed race calling themselves Kumpa Rong, or Kumpa Lepchas, but they are emigrant from Tibet, having come with the first rajah of Sikkim. These people are much more turbulent and bolder than the Lepchas, and retain much of their Tibetan character, and even of that of the very province from which they came; which is north-east of Lhasa, and inhabited by robbers. All the accounts I have received of it agree with those given by MM. Huc and Gabet.

Next to the Lepchas, the most tribe in Sikkim is that of the Limboos (called "Chung" by the Lepchas); they abound also in East Nepal, which they once ruled, inhabiting elevations from 2,000 feet to 5,000 feet. They are Buddhists, and though not divided into castes, belong to several tribes. All consider themselves as the earliest inhabitants of the Tambur Valley, though they have a tradition of having originally emigrated from Tibet, which their Tartar countenance confirms. They are more slender and sinewy than the Lepchas, and neither plait their hair nor wear ornaments; instead of the ban they use the Nepal curved knife, called "cookree", while for the striped kirtle of the Lepcha are substituted loose cotton trousers and a tight jacket; a sash is worn round the middle, and on the head a small cotton cap. When they ruled over East Nepal, their system was feudal; and on their uniting against the Nepalese, they were with difficulty dislodged from their strongholds. They are said to be equally brave

†Yet, during the Gorkha war, they displayed many instances of courage: when so hard pressed, however, that there was little choice of evils.

*Bhote is the general name for Tibet (not Bhotan), and Kumpa is a large province, or district, in that country. The Bhotanese, natives of Bhotan, or of the Dhurma country, are called Dhurma people, in allusion to their spiritual chief, the Dhurma Rajah. They are a darker and more powerful race, rude, turbulent, and Tibetan in language and religion, with the worst features of those people exaggerated. The various races of Nepal are too numerous to be alluded to here: they are described in various papers by Mr. Hodgson, in the "Journal of the Asiatic Society of Bengal". The Dhurma people are numerous at Darjeeling; they are often runaways, but invariably prove more industrious settlers than the Lepchas. In the Himalaya the name Bhotan is unknown amongst the Tibetans; it signifies literally (according to Mr. Hodgson) the end of Bhote, or Tibet, being the eastern extreme of that country. The Lepchas designate Bhotan as Ayeu, or Aieu, as do often the Bhotanese themselves. Sikkim, again, is called Lhop, or Lho, by the Lepchas and Bhotanese,

and cruel in battle, putting the old and weak to the sword, carrying the younger to slavery, and killing on the march such captives as are unable to proceed. Many enlist at Darjeeling, which the Lepchas never do; and the rajah of Nepal employs them in his army, where, however, they seldom obtain promotion, this being reserved for soldiers of Hindoo tribes. Latterly Jung Bahadur levied a force of 6,000 of them, who were cantoned at Katamandoo, where the cholera breaking out, carried off some hundreds, causing many families who dreaded conscription to flock to Darjeeling. Their habits are so similar to those of the Lepchas, that they constantly inter-marry: They mourn, burn, and bury their dead, raising a mound over the corpse, erecting a headstone, and surrounding the grave with a little paling of sticks; they then scatter eggs and pebbles over the ground. In these offices the Bijoo of the Lepchas is employed, but the Limboo has also priests of his own, called "Phedangbos", who belong to rather a higher order than the Bijooas. They officiate at marriages, when a cock is put into the bridegroom's hands, and a hen into those of the bride; the Phedangbo then cuts off the birds' heads, when the blood is caught on a plantain leaf, and runs into pools from which omens are drawn. At death, guns are fired, to announce to the gods the departure of the spirit, of these there are many, having one supreme head, and to them offerings and sacrifices are made. They do not believe in metempsychosis.

The Limboo language is totally different from the Lepcha, with less of the z in it, and more labials and palatals, hence more pleasing. Its affinities I do not know; it has no peculiar written character, the Lepcha or Nagri being used. Dr. Campbell, from whom I have derived most of my information respecting these people, was informed,† on good authority, that they had once a written language, now lost; and that it was compounded from many others by a sage of antiquity. The same authority stated that their Lepcha name "Chung" is a corruption of that of their place of residence; possibly the "Tsang" province of Tibet.

The Moormis are the only other native tribe remaining in any numbers in Sikkim, except the Tibetans of the loftier mountains (whom I shall mention at a future period), and the Mechis of the pestilential Terai, the forests of which they never leave. The Moormis are a scattered people, respecting whom I have no information, except from the authority quoted above. They are of Tibetan origin, and called "Nishung", from being composed of two branches, respectively from the districts of Nimo and Shung, both on the road between Sikkim and Lhasa. They are now most frequent in central and eastern Nepal, and are a pastoral and agricultural people, inhabiting elevations of 4,000 to 6,000 feet, and living in stone houses, thatched with grass. They are a large, powerful, and active race, grave, very plain in features, with little hair on the face. Both their language and religion are purely Tibetan.

The Magras, a tribe now confined to Nepal west of the Arun, are aborigines of Sikkim, whence they were driven by the Lepchas westward into the country of the Limboos, and by these latter further west still. They are said to have been savages, and not of Tibetan origin, and are now converted to Hindooism. A somewhat mythical account of wild people still inhabiting the Sikkim mountains, will be alluded to elsewhere.

It is curious to observe that these mountains do not appear to have afforded refuge to the Tamulian* aborigines of India proper; all the Himalayan tribes of Sikkim being markedly Mongolian in origin. It does not, however, follow that they are all of Tibetan extraction: perhaps, indeed, none but the Moormis are so. The Mechi, of the Terai is

†See "Darjeeling Guide", p. 89, Calcutta, 1854.

*The Tamulians are the Coles, Dangas, etc., of the mountains of Central India and the peninsula, who retired to mountain fastnesses, on the invasion of their country by the Indo-Germanic conquerors, who are now represented by the Hindoos.

APPENDIX III—contd.

decidedly Indo-Chinese, and of the same stock as the savage races of Assam, the north-east and east frontier of Bengal, Arracan, Burmah, etc. Both Lepchas and Limboos had, before the introduction of Lama Buddhism from Tibet, many features in common with the natives of Arracan, especially in their creed, sacrifices, faith in omens, worship of many spirits, absence of idols, and of the doctrine of metempsychosis. Some of their custom, too, are the same, the form of their houses and of some of their implements, their striped garments, their constant and dexterous use of the bamboo for all utensils, their practice of night-attacks in war, of using poisoned arrows only in the chase, and that of planting "crowfeet" of sharp bamboo stakes along the paths an enemy is expected to follow. Such are but a few out of many points of resemblance, most of which struck me when reading Lieutenant Phayre's account of Arracan,[‡] and when travelling in the districts of Khasia and Cachar.

The laws affecting the distribution of plants, and the lower animals, materially influence the migrations of man also; and as the botany, zoology, and climate of the Malayan and Siamese peninsula advance far westwards into India, along the foot of the Himalaya, so do also the varieties of the human race. These features are most conspicuously displayed in the natives of Assam, on both sides of the Burrampooter, as far as the great bend of that river, beyond which they gradually disappear; and none of the Himalayan tribes east of that point practise the bloody and brutal rites in war that prevail amongst the Cookies, Khasias, Garrows, and other Indo-Chinese tribes of the mountain forests of Assam, Eastern Bengal, and the Malay peninsula.

I have not alluded to that evidence of the extraction of the Sikkim races which is to be derived from their languages, and from which we may hope for a clue to their origin; the subject is at present under discussion, and involved in much obscurity.

That six or seven different tribes, without any feudal system or coercive head, with different languages and customs, should dwell in close proximity and in peace and unity, within the confined territory of Sikkim, even for a limited period, is an anomaly; the more especially when it is considered that except for a tincture of the Buddhist religion among some few people, they are all but savages, as low in the scale of intellect as the New Zealander or the Tihituan, and beneath those races in ingenuity and skill as craftsman. Wars have been waged amongst them, but they were neither sanguinary nor destructive, and the fact remains no less remarkable, that at the period of our occupying Darjeeling, friendship and unanimity existed amongst all these tribes; from the Tibetan at 14,000 feet, to the Mechi of the plains; under a sovereign whose temporal power was wholly unsupported by even the semblance of arms, and whose spiritual supremacy was acknowledged by very few.

CHAPTER VI

Excursion from Darjeeling to Great Rungeet—Zones of vegetation—Tree-ferns—Palms, upper limit of—Leebong, tea plantations—Ging—Buddhist remains—Tropical vegetation—Pines—Lepcha clearances—Forest fires—Buddhist monuments—Fig—Cane bridge and raft over Rungeet—Sagopalm—India-rubber—Yel Pote—Butterflies and other insects—Snakes—Camp—Temperature and humidity of atmosphere—Junction of Teesta and Rungeet—Return to Darjeeling—Tonglo, excursion to—Bamboo flowering—Oaks—Gordonia—Maize, hermaphrodite flowered—Figs—Nettles—Peepsa—Simonbong, cultivation at—European fruits at Darjeeling—Plains of India.

A very favourite and interesting excursion from Darjeeling is to the cane bridge over the Great Rungeet river, 6,000 feet below the station. To this an excellent road has been cut, by which the whole descent of six miles, as the crow flies, is easily performed on pony-back; the road distance

being only eleven miles. The scenery is, of course, of a totally different description from that of Sinchul, or even of the foot of the hills, being that of a deep mountain-valley. I several times made this trip: on the excursion about to be described, and in which I was accompanied by Mr. Barnes, I followed the Great Rungeet to the Teesta, into which it flows.

In descending from Darjeeling, the zones of vegetation are well marked between 6,000 and 7,000 feet by—(1) The oak, chesnut, and Magnolias, the main features from 7,000 to 10,000 feet. (2) Immediately below 6,500 feet, the tree-fern appears (*Alsophila gigantea*, Wall), a widely-distributed plant, common to the Himalaya, from Nepal eastward to the Malayan peninsula, Java, and Ceylon. (3) Of palms, a species of *Calamus*, and *Plectocomia*, the "Rhenoul" of the Lepchas. The latter, though not a very large plant, climbs lofty trees, and extends about forty yards through the forest; 6,500 feet is the upper limit of palms in the Sikkim Himalaya, the Rhenoul alone attaining this elevation.* (4) The fourth striking feature is a wild plantain, which ascends to nearly the same elevation ("Lukhlo", Lepcha). This is replaced by another, and rather larger species, at lower elevations; both ripen austere and small fruits, which are full of seeds, and quite uneatable; that commonly grown in Sikkim is an introduced stock (nor have the wild species ever been cultivated); it is very large, but poor in flavour, and does not bear seeds. The zones of these conspicuous plants are very clearly defined, and especially if the traveller, standing on one of the innumerable spurs which project from the Darjeeling ridge, cast his eyes up the gorges of green on either hand.

At 1,000 feet below Darjeeling a fine wooded spur projects, called Leebong. This beautiful spot is fully ten degrees warmer than Mr. Hodgson's house, and enjoys considerably more sunshine; peaches and English fruit-trees flourish extremely well, but do not ripen fruit. The tea-plant succeeds here admirably, and might be cultivated to great profit and be of advantage in furthering a trade with Tibet. It has been tried on a large scale by Dr. Campbell at his residence (alt. 7,000 feet), but the frosts and snow of that height injure it, as do the hailstorms in spring.

Below Leebong is the village of Ging, surrounded by steep, cultivated with maize, rice, and millet. It rendered very picturesque by a long row of tall poles, each bearing a narrow, vertically elongated banner, covered with Buddhist inscriptions, and surmounted by coronet-like ornaments, or spear-heads, rudely cut out of wood, or formed of basket-work, and adorned with cotton fringe. Ging is peopled by Bhotan emigrants, and when one dies, if his relations can afford to pay for them two additional poles and flags are set up by the Lamas in honour of his memory, and that of Sunga, the third member of the Buddhist Trinity.

‡"Journal of the Asiatic Society of Bengal."

*Four other *Calami* range between 1,000 and 6,000 feet on the outer hills, some of them being found forty miles distant from the plains of India. The other palms of Sikkim are "Simong" (*Caryota urens*); it is rare, and ascends to nearly 5,000 feet. *Phoenix* (probably *P. acaulis*, Buch.), a small, stemless species, which grows on the driest soil in the deep valleys; it is the "Schaap" of the Lepchas, who eat the young seeds, and use the feathery fronds, as screens in hunting. *Wallichia oblongifolia*, the "Ooh" of the Lepchas, who make no use of it; Dr. Campbell and myself, however, found that it is an admirable fodder for horses, who prefer it to any other green food to be had in these mountains. *Areca gracilis* and *Licuala peltata* are the only other palms in Sikkim; but *Cycas pectinata*, with the India-rubber fig, occurs in the deepest and hottest valleys—the western limit of both these interesting plants. Of *Pandanus* there is a graceful species at elevations of 1,000 to 4,000 feet ("Borr," Lepcha).

APPENDIX III—contd.

Below this the *Cordia* commences, with *Cedrela toona*, and various tropical genera, such as abound near Punka-jaree. The heat and hardness of the rocks cause the streams to dry up on these abrupt hills, especially on the eastern slope, and the water is therefore conveyed along the sides of the path, in conduits ingeniously made of bamboo, either split in half, or, what is better, whole, except at the septum, which is removed through a lateral hole. The oak and chestnut of this level (3,000 feet) are both different from those which grow above, as are the brambles. The *Arums* are replaced by *Caladiums*. Tree-ferns cease below 4,000 feet, and the large bamboo abounds.

At about 2,000 feet, and ten miles distant from Darjeeling, we arrived at a low, long spur, dipping down to the bed of the Rungeet, at its junction with the Rungmo. This is close to the boundary of the British ground, and there is a guard-house, and a sepoy or two at it; here we halted. It took the Lepchas about twenty minutes to construct a table and two bedsteads within our tent; each was made of four forked sticks, stuck in the ground, supporting as many side-pieces, across which were laid flat split pieces of bamboo, bound tightly together by strips of rattan palm-stem. The beds were afterwards softened by many layers of bamboo-leaf, and if not very downy, they were dry, and as firm as if put together with screws and joints.

This spur rises out of a deep valley, quite surrounded by lofty mountains; it is narrow, and covered with red clay, which the natives chew as a cure for goitre. North, it looks down into a gully, at the bottom of which the Rungeet's foamy streams winds through a dense forest. In the opposite direction, the Rungmo comes tearing down from the top of Sinchul, 7,000 feet above; and though its roar is heard, and its course is visible throughout its length, the stream itself is nowhere seen, so deep does it cut its channel. Except on this, and a few similarly hard rocky hills around, the vegetation is a mass of wood and jungle. At this spot it is rather scanty and dry, with abundance of the *Pinus longifolia* and *Sal*. The dwarf date-palm (*Phoenix acutis*) also was very abundant.

The descent to the river was exceedingly steep, the banks presenting an impenetrable jungle. The pines on the arid crest of the hills around formed a remarkable feature: they grow like the Scotch fir, the tall, red trunks springing from the steep and dry slopes. But little resin exudes from the stem, which, like that of most pines, is singularly free from lichens and mosses; its wood is excellent, and the charcoal of the burnt leaves is used as a pigment. Being confined to dry soil, this pine is local in Sikkim, and the elevation it attains here is not above 3,000 feet. In Bhotan, where there is more dry country, its range is about the same, and in the north-west Himalaya, from 2,500 to 7,000 feet.

The Lepcha never inhabits one spot for more than three successive years after which an increased rent is demanded by the Rajah. He therefore *squats* in any place which he can render profitable for that period and then moves to another. His first operation, after selecting a site, is to burn the jungle; then he clears away the trees, and cultivates between the stumps. At this season, firing the jungle is a frequent practice, and the effect by night is exceedingly fine; a forest, so dry and full of bamboo, and extending over such steep hills, affording grand blazing spectacles. Heavy clouds canopy the mountains above, and, stretching across the valleys, shut out the firmament; the air is a dead calm, as usual in these deep gorges, and the fires, invisible by day, are seen raging all around, appearing to an inexperienced eye in all but dangerous proximity. The voices of birds and insects being hushed, nothing is audible but the harsh roar of the rivers, and occasionally, rising far above it, that of the forest fires. At night we were literally surrounded by them: some smouldering, like the shale-heaps at a colliery, others fitfully bursting forth, whilst others again stalked along with a steadily increasing and enlarging flame, shooting out great

tongues of fire, which spared nothing as they advanced with irresistible might. Their triumph is in reaching a great bamboo clump, when the noise of the flames drowns that of the torrents, and as the great stem-joints burst, from the expansion of the confined air, the report is as that of a salvo from a park of artillery. At Darjeeling the blaze is visible, and the deadened reports of the bamboos bursting is heard throughout the night; but in the valley, and within a mile of the scene of destruction, the effect is the most grand, being heightened by the glare reflected from the masses of mist which hover above.

On the following morning we pursued a path to the bed of the river; passing a rude Buddhist monument, a pile of slate-rocks, with an attempt at the mystical hemisphere at top. A few flags or banners, and slabs of slate, were inscribed with "Om Mani Padmi Om". Placed on a jutting angle of the spur, backed with the pine-clad hills, and flanked by a torrent on either hand, the spot was wild and picturesque and I could not but gaze with a feeling of deep interests on these emblems of a religion which perhaps numbers more votaries than any other on the face of the globe. Buddhism in some form is the predominant creed, from Siberia and Kamschatka to Ceylon, from the Caspian steppes to Japan, throughout China, Burmah, Ava, and a part of the Malayan Archipelago. Its associations enter into every book of travels over these vast regions, with Buddha, Dhurma, Sunga, Jos, Fo, and praying wheels. The mind is arrested by the names, the imagination captivated by the symbols; and though I could not worship in the grove, it was impossible to deny to the inscribed stones such a tribute as is commanded by the first glimpse of objects which have long been familiar to our minds, but not previously offered to our senses. My head Lepcha went further: to a due observance of demon-worship he united a deep reverence for the Lamas, and he venerated their symbols rather as theirs than as those of their religion. He walked round the pile of stones three times from left to right repeating his "Om Mani", etc., then stood before it with his head hung down and his long queue streaming behind, and concluded by a votive offering of three pine-cones. When done, he looked round at me, nodded, smirked, elevated the angles of his little turned-up eyes, and seemed to think we were safe from all perils in the valleys yet to be explored.

In the gorge of the Rungeet the heat was intolerable, though the thermometer did not rise above 95°. The mountains leave but a narrow gorge between them, here and there bordered by a belt of strong soil, supporting a towering crop of long cane-like grasses and tall trees. The troubled river, about eighty yards across, rages along over a gravelly bed. Crossing the Rungmo, where it falls into the Rungeet, we came upon a group of natives drinking fermented Murwa liquor under a rock; I had a good deal of difficulty in getting my people past, and more in inducing one of the toppers to take the place of a Ghorka (Nepalese) of our party who was ill with fever. Soon afterwards, at a most wild and beautiful spot, I saw, for the first time, one of the most characteristic of Himalayan objects of art a *cane bridge*. All the spurs, round the bases of which the river flowed, were steep and rocky, their flanks clothed with the richest tropical forest, their crest tipped with pines. On the river's edge, the Banana, *Pandanus*, and *Bauhinia*, were frequent, and Figs prevailed. One of the latter (of an exceedingly beautiful species) projected over the stream, growing out of a mass of rock, its roots inter-laced and grasping at every available support, while its branches, loaded with deep glossy foliage, hung over the water. This tree formed one pier for the canes; that on the opposite bank was constructed of stong piles, propped with large stones, and between them swung the bridge, about eighty yards long, ever rocking over the torrent (forty feet below). The lightness and extreme simplicity of its structure were very remarkable. Two parallel canes, on the same horizontal plane, were stretched across the stream; from them others hung in loops, and along the loops were laid one or two bamboo stems for flooring; cross

APPENDIX III—contd.

pieces below this flooring, hung from the two upper canes, which they thus served to keep apart. The traveller grasps one of the canes in either hand, and walks along the loose bamboos laid on the swinging loops; the motion is great, and the rattling of the loose dry bamboos is neither a musical sound nor one calculated to inspire confidence; the whole structure seeming as if about to break down. With shoes it is not easy to walk; and even with bare feet it is often difficult, there being frequently but one bamboo, which, if the fastening is loose tilts up, leaving the pedestrian suspended over the torrent by the slender canes. When properly and strongly made, with good fastenings, and a floor of bamboos laid *transversely*, these bridges are easy to cross. The canes are procured from species of *Calamus*—they are as thick as the finger, and twenty or thirty yards long, knotted together, and the other pieces are fastened to them by strips of the same plant. A Lepcha, carrying one hundred and forty pounds on his back, crosses without hesitation, slowly but steadily, and with perfect confidence.

A deep broad pool below the bridge was made available for a ferry: the boat was a triangular raft of bamboo stems, with a stage on the top, and it was secured on the opposite side of the stream, having a cane reaching across to that on which we were. A stout Lepcha leapt into the boiling flood and boldly swam across, holding on by the cane, without which he would have been carried away. He unfasted the raft, and we drew it over by the cane, and, seated on the stage up to our knees in water, we were pulled across, the raft bobbing up and down over the rippling stream.

We were beyond British ground, on the opposite bank, where any one guiding Europeans, is threatened with punishment: we had expected a guide to follow us, but his non-appearance caused us to delay for some hours; four roads, or rather forest paths, meeting here, all of which were difficult to find. After a while part of a marriage procession came up, headed by the bridegroom, a handsome young Lepcha, leading a cow for the marriage feast; and after talking to him a little, he volunteered to show us the path. On the flats by the stream grew the Sago palm (*Cycas pectinata*), with a stem ten feet high, and a beautiful crown of foliage: the contrast between this and the Scotch-looking pine (both growing with oaks and palms), was curious. Much of the forest had been burnt, and we traversed large blackened patches, where the heat was intense, and increased by the burning trunks of prostrate trees, which smoulder for months, and leave a heap of white ashes. The larger timber being hollow in the centre, a current of air is produced, which causes the interior to burn rapidly, till the sides fall in, and all is consumed. I was often startled, when walking in the forest, by the hot blast proceeding from such, which I had approached without a suspicion of their being other than cold dead trunks.

Leaving the forest the path led along the river bank, and over the great masses of rock which strewn its course. The beautiful India-rubber fig was common, as was *Bassia butyracea*, the "Yel Pote" of the Lepchas, from the seeds of which they express a concrete oil, which is received and hardens in bamboo vessels. On the forest-skirts, *Hoya*, parasitical *Orchideæ*, and ferns, abounded; the *Chaulmoogra*, whose fruit is used to intoxicate fish, was very common; as was an immense mulberry tree, that yields a milky juice and produces a long green sweet fruit. Large fish, chiefly Cyprinoid, were abundant in the beautifully clear water of the river. But by far the most striking feature consisted in the amazing quantity of superb butterflies, large tropical swallow-tails, black, with scarlet or yellow eyes on their wings. They were seen everywhere, sailing majestically through the still hot air, or fluttering from one scorching rock to another, and especially loving to settle on the damp sand of the river-edge; where they sat by thousands, with erect wings, balancing themselves with a rocking motion, as their heavy sails inclined them to one

side or the other, resembling a crowded fleet of yachts on a clam day. Such an entomological display cannot be surpassed. *Cicindela* were very numerous and incredibly active, as were *Gryll*; and the great *Cicadeæ* were everywhere lighting on the ground, when they uttered a short sharp creaking sound, and anon disappeared as if by magic. Beautiful whip-snakes were gleaming in the sun: they hold on by a few coils of the tail round a twig, the greater part of their body stretched out horizontally, occasionally retracting, and darting an unerring aim at some insect. The narrowness of the gorge, and the excessive steepness of the bounding hills, prevented any view, except of the opposite mountain face, which was one dense forest, in which the wild banana was conspicuous.

Towards evening we arrived at another cane bridge, still more dilapidated than the former, but similar in structure. For a few hundred yards before reaching it we lost the path, and followed the precipitous face of slate-rocks overhanging the stream, which dashed with great violence below. Though we could not walk comfortably, even with our shoes off, the Lepchas, bearing their enormous loads, proceeded with perfect indifference.

Anxious to avoid sleeping at the bottom of the valley, we crawled, very much fatigued, through burnt dry forest, up a very sharp ridge, so narrow that the tent sate astride on it, the ropes being fastened to the tops of small trees on either slope. The ground swarmed with black ants, which got into our tea, sugar, etc., while it was so covered with charcoal that we were soon begrimed. Our Lepchas preferred remaining on the river-bank, whence they had to bring up water to us in great bamboo "chungis", as they are called. The great dryness of this face is owing to its southern exposure: the opposite mountains, equally high and steep, being clothed in a rich green forest.

At nine the next morning, the temperature was 78°, but a fine cool easterly wind blew. Descending to the bed of the river, the temperature was 84°. The difference in humidity of the two stations (with about 300 feet difference in height) was more remarkable; at the upper, the wet bulb thermometer was 67½°, and consequently the saturation point 0.713; at the lower, the wet bulb was 68°, and saturation, 0.599. The temperature of the river was, at all hours of the preceding day, and this morning 67½°.*

Our course down the river was by so rugged a path, that giddy and footsore with leaping from rock to rock, we at last attempted the jungle, but it proved utterly impervious. On turning a bend of the stream, the mountains of Bhotan suddenly presented themselves, with the Teesta flowing at their base; and we emerged at the angle formed by the junction of the Rungeet, which we had followed from the west, of the Teesta coming from the north, and of their united streams flowing south.

We were not long before enjoying the water, when I was surprised to find that of the Teesta singularly cold; its temperature being 7° below that of the Rungeet.† At the salient angle (a rocky peninsula) of their junction, we could almost place our one foot in the cold stream and the

*At this hour, the probable temperature at Darjeeling (6,000 feet above this) would be 56°, with a temperature of wet bulb 55°, and the atmosphere loaded with vapour. At Calcutta, again, the temperature was at the observatory 91.3°, wet bulb, 81.8°, and saturation, 0.737. The dryness of the air, in the damper-looking and luxuriant river-bed, was owing to the heated rocks of its channel; while the humidity of the atmosphere over the drier-looking hill where we encamped, was due to the moisture of the wind then blowing.

†This is, no doubt, due partly to the Teesta flowing south, and thus having less of the sun, and partly to its draining snowy mountains throughout a much longer portion of its course. The temperature of the one was 67½°, and that of the other 60½°.

APPENDIX III—contd.

other in the warmer. There is a no less marked difference in the colour of the two rivers; the Teesta being sea-green and muddy, the Great Rungeet dark green and very clear; and the waters, like those of the Arve and Rhone at Geneva, preserve their colours for some hundred yards; the line separating the two being most distinctly drawn. The Teesta, or main stream is much the broadest (about 80 to 100 yards wide at this season), the most rapid and deep. The rocks which skirt its bank were covered with a silt or mud deposit, which I nowhere observed along the Great Rungeet, and which, as well as its colour and coldness, was owing to the vast number of then melting glaciers drained by this river. The Rungeet, on the other hand, though it rises amongst the glaciers of Kinchinjunga and its sister peaks, is chiefly supplied by the rainfall of the outer ranges of Sinchul and Singalelah, and hence its waters are clear, except during the height of the rains.

From this place we returned to Darjeeling, arriving on the afternoon of the following day.

The most interesting trip to be made from Darjeeling, is that to the summit of Tonglo, a mountain on the Singalelah range, 10,079 feet high, due west of the station, and twelve miles in a straight line, but fully thirty by the path.†

Leaving the station by a native path, the latter plunges at once into a forest, and descends very rapidly, occasionally emerging on cleared spurs, where are fine crops of various millets, with much maize and rice. Of the latter as many as eight or ten varieties are cultivated, but seldom irrigated, which, owing to the dampness of the climate, is not necessary: the produce is often eighty-fold, but the grain is large, coarse, roddish, and rather gelatinous when boiled. After burning the timber, the top soil is very fertile for several seasons, abounding in humus, below which is a stratum of stiff clay, often of great thickness, produced by the disintegration of the rocks; the clay makes excellent bricks, and often contains nearly 30 per cent. of alumina.

At about 4,000 feet the great bamboo ("Pao" Lepcha) abounds; it flowers every year, which is not the case with all others of this genus, most of which flower profusely over large tracts of country, once in a great many years, and then die away; their place being supplied by seedlings, which grow with immense rapidity. This well-known fact is not due, as some suppose, to the life of the species being of such a duration, but to favourable circumstances in the season. The Pao attains a height of 40 to 60 feet, and the culms average in thickness the human thigh; it is used for large water-vessels, and its leaves form admirable thatch, in universal use for European houses at Darjeeling. Besides this, the Lepchas are acquainted with nearly a dozen kinds of bamboo; these occur at various elevations below 12,000 feet, forming, even in the pine-woods, and above their zone, in the skirts of the *Rhododendron* scrub, a small and sometimes almost imperious jungle. In an economical point of view they may be classed as those which split readily, and those which do not. The young shoots of several are eaten and these seeds of one are made into a fermented drink, and into bread in times of scarcity; but it would take many pages to describe the numerous purposes to which the various species are put.

Gordonia is their common tree (*G. Wallichii*), much prized for ploughshares and other purposes requiring a hard wood: it is the "Sing-brang-kun" of the Lepchas, and ascends to 4,000 feet. Oaks at this elevation occur

as solitary trees, of species different from those of Darjeeling. There are three or four with a cup-shaped involucre, and three with spinous involucre enclosing an eatable sweet nut; these latter generally grow on a dry clayey soil.

Some low steep spurs were well cultivated, though the angle of the field was upwards of 25°; the crops, chiefly maize, were just sprouting. This plant is occasionally hermaphrodite in Sikkim, the flowers forming a large drooping panicle and ripening small grains; it is, however, a rare occurrence, and the specimens are highly valued by the people.

The general prevalence of figs,* and their allies, the nettles,† is a remarkable feature in the botany of the Sikkim Himalaya, up to nearly 10,000 feet. Of the former there were here five species, some bearing eatable and very palatable fruit of enormous size, others with the fruit small and borne on prostrate, leafless branches, which spring from the root and creep along the ground.

A troublesome, dipterous insect (the "Peepsa", a species of *Samudrum*) swarms on the banks of the streams, it is very small and black, floating like a speck before the eye; its bite leaves a spot of extravasated blood under the cuticle, very irritating if not opened.

Crossing the Little Rungeet river, we camped on the base of Tonglo. The night was calm and clear, with faint cirrus but not dew. A thermometer sunk two feet in rich vegetable mould stood at 78° two hours after it was lowered, and the same on the following morning. This probably indicates the mean temperature of the month at that spot, where, however, the dark colour of the exposed loose soil must raise the temperature considerably.

May 20th.

The temperature at sunrise was 67°; the morning bright, and clear overhead, but the mountains looked threatening Darjeeling, perched on a ridge 5,000 feet above us, had a singular appearance. We ascended the Simonbong spur of Tonglo, so called from a small village and Lama temple of that name on its summit; where we arrived at noon, and passing some chaits‡ gained the Lama's residence.

Two species of bamboo, the "Payong" and "Praong" of the Lepchas, here replace the Pao of the lower regions. The former was flowering abundantly, the whole of the culms (which were 20 feet high) being a diffuse panicle of inflorescence. The "Praong" bears a round head of flowers at the ends of the leafy branches. Wild strawberry, violet, geranium, etc., announced our approach to the temperate zone. Around the temple were potato crops and peach-trees, rice, millet, yam, brinjal (egg-apple), fennel, hemp (for smoking its narcotic leaves) and cummin, etc. The potato thrives extremely well as a summer crop, at 7,000 feet, in Sikkim, though I think the root (from the Darjeeling stock) cultivated as a winter crop in the plains, is superior both in size and flavour. Peaches never ripen in this part of Sikkim apparently from the want of sun; the tree grows well at from 3,000 to 7,000 feet elevation, and

*One species of this very tropical genus ascends almost to 9,000 feet on the outer ranges of Sikkim.

†Of two of these cloth is made, and of a third, cordage. This tops of two are eaten as are several species of *Procris*. The "Poa" belongs to this order, yielding that kind of grass cloth fibre now abundantly imported into England from the Malay Islands, and used extensively for shirting.

‡The chait of Sikkim, borrowed from Tibet, is a square pedestal surmounted with a hemisphere, the convex end downwards, and on it is placed a cone, with a crescent on the top. These are erected as tombs to Lamas and as monuments to illustrious persons, and are venerated accordingly, the people always passing them from left to right, often repeating the invocation, "Om Mani Padmi Om."

†A full account of the botanical features noticed on this excursion (which I made in May, 1848, with Mr. Barnes) has appeared in the "London Journal of Botany," and the "Horticultural Society's Journal," and I shall, therefore, recapitulate its leading incidents only.

APPENDIX III—*contd.*

flowers abundantly; the fruit making the nearest approach to maturity (according to the elevation) from July to October. At Darjeeling it follows the English seasons, flowering in March and fruiting in September, when the scarce reddened and still hard fruit falls from the tree. In the plains of India, both this and the plum ripen in May, but the fruits are very acid.

It is curious that throughout this temperate region there is hardly an eatable fruit except the native walnut, and some brambles, of which the "yellow" and "ground raspberry" are the best, some insipid figs, and a very austere crap-apple. The European apple will scarcely ripen,† and the pear not at all. Currants and gooseberries show no disposition to thrive, and strawberries are the only fruits that ripen at all, which they do in the greatest abundance. Vines, figs, pomegranates, plums apricots, etc., will not succeed even as trees. European vegetables again grow, and thrive remarkably well throughout the summer of Darjeeling, and the produce is very fair, sweet and good but inferior in flavour to the English.

Of tropical fruits cultivated below 4,000 feet, oranges and indifferent bananas alone are frequent, with lemons of various kinds. The season for these is, however, very short; though that of the plantain might with care be prolonged; oranges abound in winter, and are excellent, but neither so large nor free of white pulp as those of the Khasia hills, the West Indies, or the west coast of Africa. Mangoes are brought from the plains, for though wild in Sikkim, the cultivated kinds do not thrive; I have seen the pine-apple plant, but I never met with good fruit on it.

A singular and almost total absence of the light, and of the direct rays of the sun in the ripening season, is the cause of this dearth of fruit. Both the farmer and orchard gardener in England know full well the value of a bright sky as well as of a warm autumnal atmosphere. Without this corn does not ripen, and fruit-trees are blighted. The winter of the plains of India being more analogous in its distribution of moisture and heat to a European summer, such fruits as the peach, vine, and even plum, fig, strawberry, etc., may be brought to bear well in March, April, and May, if they are only carefully tended through the previous hot and damp season, which is, in respect to the functions of flowering and fruiting their winter.

Hence it appears that, though some English fruits will turn the winter solstice of Bengal (November to May) into summer, and then flower and fruit, neither these nor others will thrive in the summer of 7,000 feet on the Sikkim Himalaya (though its temperature so nearly approaches that of England), on account of its rain and fogs. Further, they are often exposed to a winter's cold equal to the average of that of London, the snow lying for a week on the ground, and the thermometer descending to 25°. It is true that in no case is the extreme of cold so great here as in England, but it is sufficient to check vegetation, and to prevent fruit-trees from flowering till they are fruiting in the plains. There is in this respect a great difference between the climate of the central and eastern and western Himalaya, at equal elevations. In the western (Kumaon, etc.) the winters are colder than in Sikkim—the summers warmer and less humid. The rainy season is shorter and the sun shines so much more frequently between the heavy showers, that the apple and other fruits are brought to a much better state. It is true that the rain-gauge may show as great a fall there, but this is no measure of the humidity of the atmosphere, and still less so of the amount of the sun's direct light and heat intercepted by aqueous vapour, for it takes no account of the quantity of moisture

suspended in the air, nor of the depositions from fogs which are far more fatal to the perfecting of fruits than the heaviest brief showers.

The Indian climate, which is marked by one season of excessive humidity and the other of excessive drought, can never be favourable to the production either of good European or tropical fruits. Hence there is not one of the latter peculiar to the country, and perhaps but one which arrives at full perfection; namely, the mango. The plantains, oranges, and pine-apples are less abundant, of inferior kinds, and remain a shorter season in perfection than they do in South America, the West Indies, or Western Africa.

CHAPTER VII

Continue the ascent of Tonglo—Trees—Lepcha construction of hut—Simisbo—Climbing-trees—Frogs—Magnolias, etc.—Ticks—Leeches—Cattle, murrain amongst—Summit of Tonglo—Rhododendrons—Skimmia—Yew—Rose—Aconite—Bikh poison—English genera of plants—Ascent of tropical orders—Comparison with south temperate zone—Heavy rain—Temperature, etc.—Descent—Simonbong temple—Furniture therein—Praying-cylinder—Thigh-bone trumpet—Morning orisons—Present of Murwa beer, etc.

Continuing the ascent of Tonglo, we left cultivation and the poor groves of peaches at 4,000 to 5,000 feet (and this on the eastern exposure, which is by far the sunniest), the average height which agriculture reaches in Sikkim.

Above Simonbong, the path up Tonglo is little frequented—it is one of the many routes between Nepal and Sikkim, which cross the Singalelah spur of Kinchinjunga at various elevations between 7,000 and 15,000 feet. As usual, the track runs along ridges, wherever these are to be found, very steep, and narrow at the top, through deep humid forests of oaks and Magnolias, many laurels, both *Tetrathera* and *Cinnamomum*, one species of the latter ascending to 8,500 feet, and one of *Tetrathera* to 9,000 feet. Chestnut and walnut here appeared, with some leguminous trees, which however did not ascend to 6,000 feet. Scarlet flowers of *Vaccinium serpens*, an epiphytical species, were strewn about, and the great blossoms of *Rhododendron Dalhousii* and of a *Magnolia* (*Taliqua Hodgei*) lay together on the ground. The latter forms a large tree with very dense foliage, and deep shining green leaves a foot to eighteen inches long. Most of its flowers drop unexpanded from the tree, and diffuse a very aromatic smell; they are nearly as large as the fist, the outer petals purple, the inner pure white.

Heavy rain came on at 3 p.m., obliging us to take insufficient shelter under the trees, and finally to seek the nearest camping-ground. For this purpose we ascended to a spring, Simisbong, at an elevation of 6,000 feet. The narrowness of the ridge prevented our pitching the tent, small as it was; but the Lepchas rapidly constructed a house, and thatched it with bamboo and the broad leaves of the wild plantain. A table was then raised in the middle, of four posts and as many cross pieces of wood, lashed with stripes of bamboo. Across these, pieces of bamboo were laid, ingeniously flattened by selecting cylinders, crimping them all round, and then slitting each down one side, so that it opens into a flat slab. Similar but lower and longer erections, one on each side the table, formed bed or chair; and in one hour, half a dozen men, with only long knives and active hands, had provided us with a tolerably water-tight furnished house. A thick flooring of bamboo leaves kept the feet dry, and a screen of that and other foliage all round rendered the habitation tolerably warm.

At this elevation we found great scandent trees twisting around the trunks of others, and strangling them; the latter gradually decay, leaving the sheath of climbers as one of the most remarkable vegetable phenomena of

†This fruit and several others ripen at Katmandoo, in Nepal (alt. 4,000 feet), which place enjoys more sunshine than Sikkim. I have, however, received very different accounts of the produce, which, on the whole, appears to be inferior.

APPENDIX III—contd.

these mountains. These climbers belong to several orders, and may be roughly classified in two groups: (1) Those whose stems merely twine, and by constricting certain parts of their support, induce death. (2) Those which form a network round the trunk, by the coalescence of their lateral branches and aerial roots, etc.: these wholly envelop and often conceal the tree they enclose, whose branches appear rising far above those of its destroyer. To the first of these groups belong many natural orders, of which the most prominent are—*Leguminosæ*, ivies, hydrangea, vines, *Pothos*, etc. The inosculating ones are almost all figs and *Wightia*: the latter is the most remarkable, and I add a cut of its grasping roots, sketched at our encampment.

Except for the occasional hooting of an owl, the night was profoundly still during several hours after dark—the cicadas at this season not ascending so high on the mountain. A dense mist shrouded everything, and the rain pattered on the leaves of our hut. At midnight a tree-frog ("Simook," Lepcha) broke the silence with his curious metallic clack, and other quickly joined the chorus, keeping up their strange music till morning. Like many Batrachians, this has a voice singularly unlike that of any other organised creature. The cries of beasts, birds, and insects are all explicable to our senses, and we can recognise most of them as belonging to such or such an order of animal; but the voices of many frogs are like nothing else, and allied species under totally dissimilar noises. In some, as this, the sound is like the concussion of metals; in others, of the vibration of wires or cords; anything but the natural effects of lungs, larynx and muscles.*

May 21

Early this morning we proceeded upwards, our prospect more gloomy than ever. The path, which still lay up steep ridges, was very slippery owing to the rain upon the clayey soil, and was only passable from the hold afforded by interlacing roots of trees. At 8,000 feet, some enormous detached masses of micaceous gneiss rose abruptly from the ridge; they were covered with mosses and ferns, and from their summit a good view of the surrounding vegetation is obtained. The mass of the forest is formed of: (1) Three species of oak, of which *Q. annulata* (?) with immense lamellated acorns, and leaves sixteen inches long, is the tallest and the most abundant. (2) Chesnut. (3) Laurineæ of several species, all beautiful forest-trees, straight-boled, and umbrageous above. (4) Magnolias.† (5) Arborescent rhododendrons, which commence here with the *R. arboreum*. At 8,000 and 9,000 feet, a considerable change is found in the vegetation: the gigantic purple *Magnolia Campbellii* replacing the white; chesnut disappears, and several laurels: other kinds of maple are seen, with *Rhododendron argenteum*, and *Stauntonia*, a handsome climber, which has beautiful pendant clusters of lilac blossoms.

At 9,000 feet we arrived on a long flat covered with lofty trees, chiefly purple magnolias, with a few oaks,

*A very common Tasmanian species utters a sound that appears to ring in an underground vaulted chamber, beneath the feet.

†Other trees were *pyrus*, *Saurauja* (both an erect and climbing species), *Olea*, cherry, birch, alder, several maples, *Hydrangea*, one species of fig, holly, and several *Araliaceæ* trees. Many species of *Magnoliaceæ* (including the genera *Magnolia*, *Michelia*, and *Talauma*) are found in Sikkim: *Magnolia Campbellii*, of 10,000 feet, is the most superb species known. In books on botanical geography, the magnolias are considered as most abundant in North America, east of the Rocky Mountains; but this is a great mistake, the Indian mountains and islands being the centre of this natural order.

great *Pyri* and two rhododendrons, thirty to forty feet high (*R. barbatum*, and *R. aboreum*, var. *roseum*): *Skimmia* and *Symplocos* were the common shrubs. A beautiful orchid with purple flowers (*Coeloglyne Wallichii*) grew on the trunks of all the great trees, attaining a higher elevation than most other epiphytical species, for I have seen it at 10,000 feet.

A large tick infests the small bamboo, and a more hateful insect I never encountered. The traveller cannot avoid these insects coming on his person (sometimes in great numbers) as he brushes through the forest; they get inside his dress, and insert the proboscis deeply without pain. Buried head and shoulders, and retained by a barbed lancet, the tick is only to be extracted by force, which is very painful. I have devised many tortures, mechanical and chemical, to induce these disgusting intruders to withdraw the proboscis, but in vain. Leeches,† also below 7,000 feet; a small black species above 3,000 feet, and a large yellow-brown solitary one below that elevation.

Our ascent to the summit was by the bed of a water-course, now a roaring torrent, from the heavy and incessant rain. A small *Anagallis* (like *tenella*), and a beautiful purple primrose, grew by its bank. The top of the mountain is another flat ridge, with depressions and broad pools. The number of additional species of plants found here was great, and all betokened a rapid approach to the alpine region of the Himalaya. In order of prevalence the trees were,—the scarlet *Rhododendron*, *arboreum* and *barbatum*, as large bushy trees, both loaded with beautiful flowers and luxuriant foliage; *R. Falconeri*, in point of foliage the most superb of all the Himalayan species, with trunks thirty feet high, and branches bearing at their ends only leaves eighteen inches long, these are deep green above, and covered beneath with a rich brown down. Next in abundance to these were shrubs of *Skimmia Lauricola*, *Symplocos*, and *Hydrangea*; and there were still a few purple magnolias, very large *Pyri*, like mountain ash, and the common English yew, 18 feet in circumference, the red bark of which is used as a dye, and for staining the foreheads of Brahmins in Nepal. An erect white-flowered rose (*R. sericea*, the only species occurring in Southern Sikkim) was very abundant: its numerous inodorous flowers are pendant, apparent as a protection from the rain; and it is remarkable as being the only species having four petals instead of five.

A currant was common, always growing epiphytically on the trunks of large trees. Two or three species of Berberry, a cherry, *Andromeda*, *Daphne*, and maple nearly complete. I think, the list of woody plants. Amongst the herbs were many of great interest as a rhubarb, and *Aconitum palmatum*, which yields one of

†I cannot but think that the extraordinary abundance of these *Annelides* in Sikkim may cause the death of many animals. Some marked murrains have followed very wet seasons, when the leeches appear in incredible numbers; and the disease in the cattle, described to me by the Lepchas as in the stomach, in no way differs from what leeches would produce. It is a well-known fact, that these creatures have lived for days in the fauces, nares, and stomachs of the human subject, causing dreadful sufferings, and death. I have seen the cattle feeding in places where leeches so abounded, that fifty or sixty were frequently together on my ankles; and ponies are almost maddened by their biting the fetlocks.

*This plant has lately been introduced into English gardens, from the north-west Himalaya, and is greatly admired for its aromatic, evergreen foliage, and clusters of scarlet berries. It is a curious fact, that this plant never bears scarlet berries in Sikkim, apparently owing to the want of sun; the fruit ripens, but is of a greenish-red or purplish colour.

APPENDIX III—contd.

the celebrated "Bikh" poisons.† Of European genera I found *Thalictrum*, *Anemone*, *Fumaria*, violets, *Stellaria*, *Hypericum*, two *geraniums*, balsams, *Epilobium*, *Potentilla*, *Paris* and *Convallaria*, one of the latter has verticillate leaves, and its root, also called "bikh," is considered a very virulent poison.

Still, the absence or rarity at this elevation of several very large natural families,‡ which have numerous representatives at and much below the same level in the inner ranges, and on the outer of the Western Himalaya, indicate a certain peculiarity in Sikkim. On the other hand, certain tropical genera are more abundant in the temperate zone of the Sikkim mountains, and ascend much higher there than in the Western Himalaya: of this fact I have cited conspicuous examples in the palms, plantains and tree-ferns. This ascent and prevalence of tropical species is due to the humidity and equability of the climate in this temperate zone, and is, perhaps, the direct consequence of these conditions. An application of the same laws accounts for the extension of similar features far beyond the tropical limit in the Southern Ocean, where various natural orders, which do not cross the 30th and 40th parallels of N. latitude, are extended to the 55th of S. latitude, and found in Tasmania, New Zealand, the so-called Antarctic Islands south of that group, and at Cape Horn itself.

The rarity of Pines is perhaps the most curious feature in the botany of Tonglo, and on the outer ranges of Sikkim; for between the level of 2,500 feet (the upper limit of *P. longifolia*) and 10,000 feet (that of the *Tarus*) there is no coniferous tree whatever in Southern Sikkim.

We encamped amongst Rhododendrons, on a spongy soil of black vegetable matter, so oozy that it was difficult to keep the feet dry. The rain poured in torrents all the evening, and with the calm, and the wetness of the wood prevented our enjoying a fire. Except a transient view into Nepal, a few miles west of us, nothing was to be seen, the whole mountain being wrapped in dense masses of vapour. Gusts of wind, not felt in the forest, whistled through the gnarled and naked tree-tops; and though the temperature was 50°, this wind produced cold to the feelings. Our poor Lepchas were miserably off, but always happy under four posts and a bamboo-leat thatch, with no covering but a single thin cotton garment, they crouched on the sodden turf, joking with the Hindoos of our party, who, though supplied with good clothing and shelter, were doleful companions.

I made a shed for my instruments under a tree; Mr. Barnes, ever active and ready, floored the tent with logs of wood, and I laid a "corduroy road" of the same to my little observatory.

During the night the rain did not abate; and the tent-roof leaked in such torrents, that we had to throw pieces of wax-cloth over our shoulders as we lay in bed. There was no improvement whatever in the weather on the following morning. Two of the Hindoos had crawled into the tent during the night, attacked with fever and

ague.* The tent being too sodden to be carried, we had to remain where we were, and with abundance of novelty in the botany around, I found no difficulty in getting through the day. Observing the track, of sheep, we sent two Lepchas to follow them, who returned at night from some miles west in Nepal, bringing two. The shepherds were Geroongs of Nepal, who were grazing their flocks on a grassy mountain top, from which the woods had been cleared probably by fire. The mutton was a great boon to the Lepchas, but the Hindoos would not touch it, and several more sickening during the day, we had the tent most uncomfortably full.

During the whole of the 22nd, from 7 a.m. to 11 p.m. the thermometer never varied 61°, ranging from 47½° in the morning to 54°, its maximum, and 1 p.m., and 50½° at night. At seven the following morning it was the same. One, sunk two feet six inches in mould and clay, stood constantly at 50½°. The dew-point was always below the temperature, at which I was surprised, for more drenching weather could not well be. The mean dew-point was 50½°, and consequent humidity 0.973°.

These observations, and those of the barometer, were taken 60 feet below the summit, to which I moved the instruments on the morning of the 23rd. At a much more exposed spot the results would no doubt have been different, for a thermometer, there sunk to the same depth as that below, stood at 49½° (or one degree colder than 60 feet lower down). My barometrical observations, taken simultaneously with those of Calcutta, give the height of Tonglo, 10,078.3 feet: Colonel Waugh's by trigonometry, 10,079.4 feet—a remarkable and unusual coincidence.

May 23

We spent a few hours of alternate fog and sunshine on the top of the mountain, vainly hoping for the most modest view; our inability to obtain it was extremely disappointing, for the mountain commands a superb prospect, which I enjoyed fully in the following November, from a spot a few miles further west. The air, which was always foggy, was alternately cooled and heated, as it blew over the trees, or the open space we occupied; sometimes varying 5 and 6° in a quarter of an hour.

Having partially dried the tent in the wind, we commenced the descent, which, owing to the late torrents of rain, was most fatiguing and slippery; it again commenced to drizzle at noon, nor was it till we had descended to 6,000 feet that we emerged from the region of clouds. By dark we arrived at Simonbong, having descended 5,000 feet, at the rate of 1,000 feet an hour; and were kindly received by the Lama, who gave us his temple for the accommodation of the whole party. We were surprised at this, both because the Sikkim authorities had represented the Lamas as very averse to Europeans, and because he might well have hesitated before admitting a promiscuous horde of thirty people into a sacred building, where the little valuables on the altar, etc., were quite at our disposal. A better tribute could not well have been paid to the honesty of my Lepcha followers. Our host only begged us not to disturb his people, nor to allow the Hindoos of our party to smoke inside.

Simonbong is one of the smallest and poorest Gumpas or temples, in Sikkim: unlike the better class, it is built of wood only. It consisted of one large room, with small sliding shutter windows, raised on a stone foundation, and roofed with shingles of wood; opposite the door of a wooden altar was placed, rudely chequered with black white, and red; to the right and left were shelves, with

† "Bikh" is yielded by various *Aconita*. All the Sikkim kinds are called "gniong" by Lepchas and Bhotecas, who do not distinguish them. The *A. Napellus* is abundant in the north-west Himalaya, and is perhaps as virulent as Bikh as any species.

‡ *Ranunculaceæ*, *Fumariæ*, *Cruciferae*, *Alsinææ*, *Geraniæ*, *Leguminosæ*, *Potentilla*, *Epilobium*, *Crassulaceæ*, *Saxifragæ*, *Umbelliferae*, *Lonicera*, *Valerianææ*, *Dipsacæ*, various genera of *Compositæ*, *Campanulaceæ*, *Lobeliææ*, *Gentianææ*, *Boraginææ*, *Scrophularinææ*, *Primulaceæ*, *Graminææ*.

*It is a remarkable fact, that both the natives of the plains, under many circumstances, and the Lepchas when suffering from protracted cold and wet, take fever and ague in sharp attacks. The disease is wholly unknown amongst Europeans residing above 4,000 feet, similar exposure in whom brings on rheumatism and cold.

APPENDIX III—contd.

a few Tibetan books, wrapped in silk; a model of Symbo-nath temple in Nepal, a praying-cylinder,* and some imple-ments for common purposes, bags of juniper, English wine-bottles and glasses, with tufts of *Abies Webbiana*, rhododendron flowers, and peacock's feathers, besides various trifles, clay ornaments and offerings, and little Hindoo idols. On the altar were ranged seven little brass cups, full of water; a large conch shell, carved with sacred lotus; a brass jug from Lhasa, a beautiful design, and a human thigh-bone, hollow, and perforated through both condyles.†

Facing the altar was a bench and a chair, and on one side a huge tambourine, with two curved iron drum-sticks. The bench was covered with bells, handsomely carved with idols, and censers with juniper-ashes; and on it lay the *dorge*, or double-headed thunderbolt, which the Lama holds in his hand during service. Of all these articles, the human thigh-bone is by much the most curious; it is very often that of a Lama, and is valuable in proportion to its length.‡ As, however, the Sikkim Lamas are burned, the relics are generally procured from Tibet, where the corpses are cut in pieces and thrown to the kites, or into the water.

Two boys usually reside in the temple, and their beds were given up to us, which being only rough planks laid on the floor, proved clean in one sense, but contrasted badly with the springy couch of bamboo the Lepcha makes, which renders carrying a mattress or aught but blankets superfluous.

May 24

We were awakened at daylight by the discordant orisons of the Lama; these commenced by the boys beating the great tambourine, then blowing the conch-shells, and finally the trumpets and thigh-bone. Shortly the Lama entered, clad in scarlet, shorn and barefooted, wearing a small red silk mitre, a loose gown girt round the middle, and an undergarment of questionable colour, possibly once purple. He walked along, slowly muttering his prayers, to the end of the apartment, whence he took a brass bell and *dorge*, and, sitting down cross-legged, commenced matins, counting his beads, or ringing the bell, and uttering most dismal prayers. After various disposals of the cups, a larger bell was violently rung for some minutes, himself snapping his fingers and uttering most unearthly sounds. Finally, incense was brought, of charcoal with juniper-sprigs; it was swung about, and concluded the morning service, to our great relief for the noises were quite intolerable. Fervid as the devotions appeared, to judge by their intonation, I fear the Lama felt more curious about us than was proper under the circumstances; and when I tried to sketch him, his excitement knew no bounds; he fairly turned round on the settee, and continuing his prayers and bell-accompaniment, appeared to be exorcising me, or some spirit within me.

*It consisted of a leathern cylinder placed upright in a frame; a projecting piece of iron strikes a little bell at each revolution, the revolution being caused by an elbowed axle and string. Within the cylinder are deposited written prayers, and whoever pulls the string properly is considered to have repeated his prayers as often as the bell rings. Representations of these implements will be found in other parts of this volume.

†To these are often added a double-headed rattle, or small drum, formed of two crowns of human skulls, cemented back to back: each face is then covered with parchment, and closes some pebbles. Sometimes this instrument is provided with a handle.

‡It is reported at Darjeeling, that one of the first Europeans buried at this station, being a tall man, was disinterred by the resurrectionist Bhoteas for his *trumpet-bones*.

After breakfast the Lama came to visit us, bringing rice, a few vegetables, and a large bamboo-work bowl, thickly varnished with India-rubber, and waterproof, containing half-fermented millet. This mixture, called *Murwa*, is invariably offered to the traveller, either in the state of fermented grain, or more commonly in a bamboo jug, filled quite up with warm water; when the fluid, sucked through a reed, affords a refreshing drink. He gratefully accepted a few rupees and trifles which we had to spare.

Leaving Simonbong, we descended to the Little Rungeet, where the heat of the valley was very great; 80° at noon, and that of the stream 69° the latter was an agreeable temperature for the coolies, who plunged, steaming with perspiration, into the water, catching fish with their hands. We reached Darjeeling late in the evening, again drenched with rain; our people Hindoo and Lepcha, imprudently remaining for the night in the valley. Owing probably as much to the great exposure they had lately gone through, as to the sudden transition from a mean temperature of 50° in a bracing wind, to a hot close jungle valley at 75°, no less than seven were laid up with fever and ague.

Few excursions can afford a better idea of the general features and rich luxuriance of the Sikkim Himalaya than that to Tonglo. It is always interesting to roam with an aboriginal, and especially a mountain people, through their thinly inhabited valleys, over their grand mountains, and to dwell alone with them in their gloomy and forbidding forests, and no thinking man can do so without learning much, however slender be the means at his command for communion. A more interesting and attractive companion than the Lepcha I never lived with: cheerful, kind, and patient with a master to whom he is attached; rude but not savage, ignorant and yet intelligent; with a simple resource of a plain knife he makes his house and furnishes yours, with a speed, alacrity, and ingenuity that while away that well-known long hour when the weary pilgrim frets for his couch. In all my dealings with these people, they proved scrupulously honest. Except for drunkenness and carelessness, I never had to complain of any of the merry troop; some of whom, bareheaded and barelegged, possessing little or nothing save a cotton garment and a long knife, followed me for many months on subsequent occasions, from the scorching plains to the everlasting snows. Ever foremost in the forest or on the bleak mountain, and ever ready to help, to carry, to encamp, collect, or cook, they cheer on the traveller by their unostentatious zeal in his service, and are spurs to his progress.

CHAPTER VIII

Difficulty in procuring leave to enter Sikkim—Obtain permission to travel in East Nepal—Arrangements—Coolies—Stores—Servants—Personal equipment—Mode of travelling—Leave Darjeeling—Goong ridge—Behaviour of Bhotan coolies—Nepul frontier—Myong valley—Han—Sikkim massacre—Cultivation—Nettles—Camp at Nanki on Tonglo—Bhotan coolies run away—View of Chumulari Nepal peaks to west—Sakkiasung—Buceros—Road to Wallanchoon—Oaks—Scarcity of water—Singular view of mountain-valleys—Encampment—My tent and its furniture—Evening occupations—Dunkotah—Cross ridge of Sakkiasung—Yews—Silver-firs—View of Tambur valley—Pemmi river—Pebbly terraces—Geology—Holy springs—Enormous trees—*Luculia gratissima*—Khawa river, rocks of—Arrive at Tambur—Shingle and gravel terraces—Natives, indolence of—Canoe ferry—Votive offerings—Bad road—Temperature, etc.—Chingtam village, view from—Mywa river and Guola—House—Boulders—Chain bridge—Meepeo, arrival of—Fever.

Owing to the unsatisfactory nature of our relations, with the Sikkim authorities, to which I have elsewhere alluded, my endeavours to procure leave to penetrate further beyond the Darjeeling territory than Tonglo, were attended with some trouble and delay.

APPENDIX III—*contd.*

In the autumn of 1848, the Governor-General communicated with the Rajah, desiring him to grant me honourable and safe escort through his dominions; but this was at once met by a decided refusal, apparently admitting of no compromise. Pending further negotiations, which Dr. Campbell felt sure would terminate satisfactorily, though perhaps too late for my purpose, he applied to the Nepal Rajah for permission for me to visit the Tibetan passes, west of Kinchinjunga; proposing in the meanwhile to arrange for my return through Sikkim. Through the kindness of Col. Thoresby, the Resident at that Court, and the influence of Jung Bahadoor, this request was promptly acceded to, and a guard of six Nepalese soldiers and two officers was sent to Darjeeling to conduct me to any part of the eastern districts of Nepal which I might select. I decided upon following up the Tambur, a branch of the Arun river, and exploring the two easternmost of the Nepalese passes into Tibet (Wallanchoon and Kanglachem), which would bring me as near to the central mass and loftiest part of the eastern flank of Kinchinjunga as possible.

For this expedition (which occupied three months), all the arrangements were undertaken for me by Dr. Campbell, who afforded me every facility which in his Government position he could command, besides personally superintending the equipment and provisioning of my party. Taking horses or loaded animals of any kind was not expedient: the whole journey was to be performed on foot, and everything carried on men's backs. As we were to march through wholly unexplored countries, where food was only procurable at uncertain intervals, it was necessary to engage a large body of porters, some of whom should carry bags of rice for the coolies and themselves too. The difficulty of selecting these carriers, of whom thirty were required, was very great. The Lepchas, the best and most tractable, and over whom Dr. Campbell had the most direct influence disliked employment out of Sikkim, especially in so warlike a country as Nepal: and they were besides thought unfit for the snowy regions. The Nepalese, of whom there are many residing as British subjects in Darjeeling, were mostly run-aways from their own country, and afraid of being claimed, should they return to it, by the lords of the soil. To employ Limboos, Moormis, Hindoos, or other natives of low elevations, was out of the question; and no course appeared advisable but to engage some of the Bhotan run-aways domiciled in Darjeeling, who are accustomed to travel at all elevations, and fear nothing but a return to the country which they have abandoned as slaves, or as culprits: they are immensely powerful, and though intractable to the last degree, are generally glad to work and behave well for money. The choice, as will hereafter be seen, was unfortunate, though at the time unanimously approved.

My party mustered fifty-six persons. These consisted of myself, and one personal servant, a Portuguese half-caste, who undertook all offices, and spared me the usual train of Hindoo and Mohomedan servants. My tent and equipments (for which I was greatly indebted to Mr. Hodgson), instruments, bed, box of clothes, books and papers, required a man for each. Seven more carried my papers for drying plants, and other scientific stores. The Nepalese guard had two coolies of their own. My interpreter, the coolie Sirdar (or headman), and my chief plant collector (a Lepcha), had a man each. Mr. Hodgson's bird and animal shooter, collector, and stuffer, with their ammunition and indispensables, had four more; there were besides, three Lepcha lads to climb trees and change the plant-papers, who had long been in my service in that capacity; and the party was completed by fourteen Bhotan coolies laden with food, consisting chiefly of rice with ghee, oil scapsium, salt, and flour.

I carried myself a small barometer, a large knife and digger for plants, note-book, telescope, compass and other instruments; whilst two or three Lepcha lads who accompanied me as satellites, carried a botanising box, thermometers, sextant and artificial horizon, measuring-tape,

azimuth compass and stand geological hammer, bottles and boxes for insects, sketch-book, etc., arranged in compartments of strong canvas bags. The Nepal officer (of the rank of sergeant, I believe) always kept near me with one of his men rendering innumerable little services. Other sepoys were distributed amongst the remainder of the party, one went ahead to prepare camping-ground, and one brought up the rear.

The course generally pursued by Himalayan travellers is to march early in the morning, and arrive at the camping-ground before or by noon, breakfasting before starting, or *en route*. I never followed this plan, because it sacrificed the mornings, which were otherwise profitably spent in collecting about camp; whereas, if I set off early, I was generally too tired with the day's march to employ in any active pursuit the rest of the daylight, which in November only lasted till 6 p.m. The men breakfasted early in the morning, I somewhat later, and all had started by 10 a.m. arriving between 4 and 6 p.m. at the next camping-ground. My tent was formed of blankets, spread over cross-pieces of wood and a ridge-pole, enclosing an area of 6 to 8 feet by 4 to 6 feet. The bedstead, table, and chair were always made by my Lepchas, as described in the Tonglo excursion. The evenings I employed in writing up notes and journals, plotting maps, and ticketing the plants collected during the day's march.

I left Darjeeling at noon, on the 27th October, accompanied by Dr. Campbell, who saw me fairly off, the coolies having preceded me. Our direct route would have been over Tonglo, but the threats of the Sikkim authorities rendered it advisable to make for Nepal at once; we therefore kept west along the Goong ridge, a western prolongation of Sinehul.

On overtaking the coolies, I proceeded for six or seven miles along a zig-zag road, at about 7,500 feet elevation, through dense forests and halted at a little hut within sight of Darjeeling. Rain and mist came on at nightfall, and though several parties of my servants arrived, none of the Bhotan coolies made their appearance, and I spent the night without food and bed, the weather being much too foggy and dark to send back to meet the missing men. They joined me late on the following day, complaining unreasonably of their loads, and without their Sirdar, who, after starting his crew, had returned to take leave of his wife and family. On the following day he appeared, and after due admonishment we started, but four miles further on were again obliged to halt for the Bhotan coolies, who were equally deaf to threats and entreaties. As they did not come up till dusk, we were obliged to encamp here (alt. 7,400 feet), at the common source of the Balasun, which flows to the plains, and the Little Rungeet, whose course is north.

The contrast between the conduct of the Bhotan men and that of the Lepchas and Nepalese was so marked, that I seriously debated in my own mind the propriety of sending the former back to Darjeeling, but yielded to the remonstrances of their Sirdar and the Nepal guard, who represented the great difficulty we should have in replacing them, and above all, the loss of time, at this season a matter of great importance. We accordingly started again the following morning, and still keeping in a western direction, crossed the posts in the forest dividing Sikkim from Nepal, and descended into the Myong valley of the latter country, through which flows the river of that name, a tributary of the Tambur. The Myong valley is remarkably fine: it runs south-west from Tonglo, and its open character and general fertility contrast strongly with the bareness of the lower mountain spurs which flank it, and with the dense, gloomy, steep and forest-clad gorges of Sikkim. At its lower end, about twenty miles from the frontier, is the military fort of Ilam, a celebrated stockaded post and cantonment of the Ghorkas: its position is marked by a conspicuous conical hill. The inhabitants are chiefly Brahmins, but there are also some Moormis, and a few

APPENDIX III—contd.

Lepchas who escaped from Sikkim during the general massacre in 1825. Among these is a man who had formerly much influence in Sikkim; he still retains his title of *Kazee*,* and has had large lands assigned to him by the Nepalese Government: he sent the usual present of a kid, fowls, and eggs, and begged me to express to Dr. Campbell his desire to return to his native country, and settle at Darjeeling.

The scenery of this valley is the most beautiful I know of in the lower Himalaya, and the *Cheer Pine* (*P. longifolia*) is abundant, cresting the hills, which are loosely clothed with clumps of oaks and other trees, bamboos, and bracken (*Pteris*). The slopes are covered with red clay, and separate little ravines luxuriantly clothed with tropical vegetation, amongst which flow pebbly streams of transparent cool water. The villages, which are merely scattered collections of huts, are surrounded with fields of rice, buckwheat, and Indian corn, which latter the natives were now storing in little granaries, mounted on four posts, men, women, and children being all equally busy. The quantity of gigantic nettles (*Urtica heterophylla*) on the skirts of these maize fields is quite wonderful: their long white stings look most formidable but though they sting virulently, the pain only lasts half an hour or so. These, however, with leeches, mosquitos, peepsas, and ticks, sometimes keep the traveller in a constant state of irritation.

However civilised the Hindoo may be in comparison with the Lepcha, he presents a far less attractive picture to the casual observer; he comes to your camping-ground, sits down, and stares with all his might, but offers no assistance; if he brings a present at all, he expects a return on the spot, and goes on begging till satisfied. I was amused by the cool way in which my Ghorka guard treated the village lads, when they wanted help in my service, taking them by the shoulder, pulling out their knives for them, placing them in their hands, and setting them to cut down a tree, or to chop firewood, which they seldom refused to do, when a little such douce violence was applied.

My object being to reach the Tambur, north of the great east and west mountain ridge of Sakkaizung, without crossing the innumerable feeders of the Myong and their dividing spurs, we ascended the north flank of the valley to a long spur from Tonglo, intending to follow winding ridges of that mountain to the sources of the Pemmi at the Phulloot mountains, and thence descend.

On the 3rd November I encamped on the flank of Tonglo (called Nanki in Nepal), at 9,300 feet about 700 feet below the western summit, which is rocky, and connected by a long flat ridge with that which I had visited in the previous May. The Bhotan coolies behaved worse than ever; their conduct being in all respects typical of the turbulent, mulish race to which they belong. They had been plundering my provisions as they went along, and neither their Sirdar nor the Ghorka soldiers had the smallest authority over them. I had hired some Ghorka coolies to assist and eventually to replace them, and had made up my mind to send back the worst from the more populous banks of the Tamdur, when I was relieved by their making off of their own accord. The dilemma was however awkward, as it was impossible to procure men on the top of a mountain 10,000 feet high, or to proceed towards Phulloot. No course remained but to send to Darjeeling for others, or to return to the Myong valley, and take a more circuitous route over the west end of Sakkaizung, which led through villages from which I could procure coolies day by day. I preferred the latter plan, and sent one of the soldiers to the nearest village for assistance to bring the loads down, halting a day for that purpose.

*This Mohamedan title, by which the officers of state are known in Sikkim, is there generally pronounced *Kajee*.

From the summit of Tonglo I enjoyed the view I had so long desired of the Snowy Himalaya, from north-east; Sikkim being on the right, Nepal on the left, and the plains of India to the southward; and I procured a set of compass bearings, of the greatest use in mapping the country. In the early morning the transparency of the atmosphere renders this view one of astonishing grandeur. Kinchinjunga bore nearly due north, a dazzling mass of snowy peaks, intersected by blue glaciers, which gleamed in the slanting rays of the rising sun, like aquamarines set in frosted silver. From this the sweep of snowed mountains to the eastward was almost continuous as far as Chola (bearing east-north-east), following a curve of 150 miles, and enclosing the whole of the northern part of Sikkim, which appeared a billowy mass of forest-clad mountains. On the north-east horizon rose the Donkia mountain (23,176 feet), and Chumulari (23,929 feet). Though both were much more distant than the snowy ranges, being respectively eighty and ninety miles off, they reared their gigantic heads higher, seeming what they really were, by far the loftiest peaks next to Kinchinjunga; and the perspective of snow is so deceptive, that though 40 to 60 miles beyond, they appeared as though almost in the same line with the ridges they overtopped.

Of these mountains, Chumulari presents many attractions to the geographer, from its long disputed position, its sacred character, and the interest attached to it since Turner's mission to Tibet in 1783. It was seen and recognised by Dr. Campbell, and measured by Colonel Waugh, from Sinchul, and also from Tonglo, and was a conspicuous object in my subsequent journey to Tibet. Beyond Junnoo, one of the western peaks of Kinchinjunga, no continuous snowy chain was visible; the Himalaya seemed suddenly to decline into black and rugged peaks, till in the far north-west it rose again in a white mountain mass of stupendous elevation at 80 miles distance called by my Nepal people, "Tsungau".* From the bearings I took of it from several positions, it is in about Lat. 27°49' and Long. 86°24', and is probably on the west flank of the Arun valley and river, which latter, in its course from Tibet to the plains of India, receives the waters from the west flank of Kinchinjunga, and from the east flank of the mountain in question. It is perhaps one which has been seen and measured from the Tirhoot district by some of Colonel Waugh's party, and which has been reported to be upwards of 28,000 feet in elevation; and it is the only mountain of the first class in magnitude between Gosainthan (north-east of Katmandoo) and Kinchinjunga.

To the west, the black ridge of Sakkaizung, bristling with pines (*Abies Webbiana*), cut off the view of Nepal; but south-west, the Myong valley could be traced to its junction with the Tambur about thirty miles off: beyond which to the south-west and south, low hills belonging to the outer ranges of Nepal rose on the distant horizon, seventy or eighty miles off; and of these the most conspicuous were the Mahavarati which skirt the Nepal Terai. South and south-east, Sinchul and the Goong range of Sikkim intercepted the view of the plains of India, of which I had a distant peep to the south-west only.

The west top of Tonglo is very open and grassy, with occasional masses of gneiss of enormous size, but probably not *in situ*. The whole of this flank, and for 1,000 feet down the spur to the south-west, had been cleared by fire for pasturage, where flocks of black-faced sheep were grazing. During my stay on the mountain, except in the early morning, the weather was bleak, gloomy and very cold, with a high south-west wind. The mean

*This is probably the easternmost and loftiest peak seen from Katmandoo, distant 78 miles, and estimated elevation 20,117 feet by Col. Crawford's observations. [P.S. Tsungau is now better known as Mount Everest, the loftiest summit on the globe, 29,002 feet. Its position is Lat. 28°N., Long 87°E. It cannot be seen from Katmandoo.]

APPENDIX III—contd.

temperature was 41° , extremes $\frac{53^{\circ} \cdot 2}{26^{\circ}}$: the nights were very clear, with sharp hoar-frost; the radiating thermometer sank to 21° , the temperature at $3\frac{1}{2}$ feet depth was $51^{\circ} \cdot 5$.

A few of the Bhotan coolies having voluntarily returned, I left Tonglo on the 5th, and descended its west flank to the Mai, a feeder of the Myong. The descent was as abrupt as that on the east face, but through less dense forest; the Sikkim side (that facing the east) being much the dampest. I encamped at dark by a small village (Jummanoo), at 4,360 feet, having descended 5,000 feet in five hours. Hence we marched eastward to the village of Sakkinzung, which we reached on the third day, crossing *en route* several spurs 4,000 to 6,000 feet high from the same ridge, and as many rivers, which all fall into the Myong, and whose beds are elevated from 2,500 to 3,000 feet.

Though rich and fertile, the country is scantily populated, and coolies were procured with difficulty: I therefore sent back to Darjeeling all but absolute indispensables, and on the 9th of November started up the ridge in a northerly direction, taking the road from Nam to Wallanchoon. The ascent was gradual, through a fine forest, full of horn-bills (*Buceros*), a bird resembling the Toucan (*Dhumass Lepcha*). At 7,000 feet an oak (*Quercus semecarpifolia*), "Khasrou" of the Nepalese, commences, a tree which is common as far west as Kashmir, but which I never found in Sikkim, though it appears again in Bhotan*. It forms a broad-headed tree, and has a very handsome appearance, its favourite locality is on grassy open shoulders of the mountains. It was accompanied by an *Astragalus*, *Geranium*, and several other plants of the drier interior parts of Sikkim. Water is very scarce along the ridge; we walked fully eight miles without finding any, and were at length obliged to camp at 8,350 feet by the only spring that we should be able to reach. With respect to drought, this ridge differs materially from Sikkim where water abounds at all elevations; and the cause is obviously its position to the westward of the great ridge of Singalelah (including Tonglo) by which the S.W. currents are drained of their moisture. Here again, the east flank was much the dampest and most luxuriantly wooded.

East of Siligoree the plains are unvaried by tree or shrub, and are barren wastes of short turf or sterile sand, with the dwarf-palm (*Phoenix acaulis*), a sure sign of a most hungry soil.

The latter part of the journey I performed on elephants during the heat of the day, and a more uncomfortable mode of conveyance surely never was adopted; the camel's pace is more fatiguing, but that of the elephant is extremely trying after a few miles, and is so injurious to the human frame that the Mahouts (drivers) never reach an advanced age, and often succumb young to spine-diseases, brought on by the incessant motion of the vertebral column. The broiling heat of the elephant's black back, and the odour of its oily driver, are disagreeable accompaniments, as are in habits of snorting water from its trunk over its parched skin, and the consequences of the great bulk of green food which it consumes.

From Siligoree I made a careful examination of the gravel beds that occur on the road north to the foot of the hills, and thence over the tertiary sandstone to Punkabaree. At the Rukti river, which flows south-west.

the road suddenly rises, and crosses the first considerable hill, about two miles south of any rock *in situ*. This river cuts a cliff from 60 to 100 feet high, composed of stratified sand and water-worn gravel; further south, the spur declines into the plains, its course marked by the Sal that thrives on its gravelly soil. The road then runs north-west over a plain to an isolated hill about 200 feet high, also formed of sand and gravel. We ascended to the top of this, and found it covered with blocks of gneiss, and much angular detritus. Hence the road gradually ascends and becomes clayey. Argillaceous rocks, and a little ochreous sandstone appeared in highly-inclined strata, dipping north, and covered with great water-worn blocks of gneiss. Above, a flat terrace, flanked to the eastward by a low wooded hill, and another rise of sandstone, lead on to the great Baisarbatti terrace.

Bombar, *Erythrina*, and *Duabanga* (*Lagerstræmia grandiflora*) were in full flower and with the profusion of *Bauhinia*, rendered the tree-jungle gay: the two former are leafless when flowering. The *Duabanga* is the pride of these forests. Its trunk, from eight to fifteen feet in girth, is generally forked from the base, and the long pendulous branches which clothe the trunk for 100 feet are thickly leafy, and terminated by racemes of immense white flowers, which, especially when in bud, smell most disagreeably of assafoetida. The magnificent Apocynaceous climber, *Braumontia*, was in full bloom, ascending the loftiest trees, and clothing their trunks with its splendid foliage and festoons of enormous funnel-shaped white flowers.

The report of a bed of iron-stone eight or ten miles west of Punkabaree determined our visiting the spot; and the locality being a dense jungle, the elephants were sent on ahead.

We descended to the terraces flanking the Balasun river, and struck west along jungle paths to a loosely-timbered flat. A sudden descent of 150 feet landed us on a second terrace. Further on, a third dip of about twenty feet (in some places obliterated) flanks the bed of the Balasun, the river itself being split into many channels at this season. The west bank, which is forty feet high, is of stratified sand and gravel, with vast slightly-worn blocks of gneiss: from the top of this we proceeded south-west for three miles to some Mechi villages, the inhabitants of which flocked to meet us, bringing milk and refreshments.

The Lohar-ghur, or "iron hill," lies in a dense dry forest. Its plain-ward flanks are very steep, and covered with scattered weather-worn masses of ochreous and black iron-stone, many of which are several yards long: it fractures with faint metallic lustre, and is very earthy in parts; it does not affect the compass. There are no pebbles of iron-stone, nor water-worn rocks of any kind found with it.

The sandstones, close by, cropped out in thick beds (dip north 70°): they are very soft, and beds of laminated clay, and of a slaty rock, are intercalated with them; also an excessively tough conglomerate, formed of an indurated blue or grey paste, with nodules of harder clay. There are no traces of metal in the rock, and the lumps of ore are wholly superficial.

Below Punkabaree the Baisarbatti stream cuts through banks of gravel overlying the sandstone (dip north 65°). The sandstone is gritty and micaceous, intercalated with beds of indurated shale and clay; in which I found the shaft (apparently) of a bone; there were also beds of the same clay conglomerate which I had seen at Lohar-ghur, and thin seams of brown lignite, with a rhomboidal cleavage. In the bed of the stream were carbonaceous shales, with obscure impressions of fern-leaves, of *Trizygia*, and *Vertebraria*: both fossils characteristic of

*The Oak ascends in the N. W. Himalaya to the highest limit of forest (12,000 feet). No Oak in Sikkim attains a greater elevation than 10,000 feet.

APPENDIX III—*contd.*

the Burdwan coal-fields but too imperfect to justify any conclusion as to the relation between these formations.*

Ascending the stream, these shales are seen *in situ*, overlain by the metamorphic clay-slate of the mountains, and dipping inwards (northwards). This is at the foot of the Punkabaree spur, and close to the bungalow, where a stream and landslip expose good sections. The carbonaceous beds dip north 60° and 70° , and run east and west; much quartz rock is intercalated with them, and soft white pink micaceous sandstones. The coal-seams are few in number, six to twelve inches thick, very confused and distorted, and full of elliptic nodules, or spheroids of quartzite, covered with concentric scaly layers of coal; they overlie the sandstones mentioned above. These scanty notices of super-position being collected in a country clothed with the densest tropical forest, where a geologist pursues his fatiguing investigations under disadvantages that can hardly be realized in England, will, I fear, long remain unconfirmed. I may mention, however, that the appearance of inversion of that strata at the foot of great mountain masses has been observed in the Alleghany chain, and I believe in the Alps.†

A poor Mech was fishing in the stream, with a basket curiously formed of a cylinder of bamboo, cleft all round in innumerable strips, held together by the joints above and below; these strips being stretched out as a balloon in the middle, and kept apart by a hoop. A small hole is cut in the cage, and a mouse-trap entrance formed; the cage is placed in the current with the open end upwards, where the fish get in, and though little bigger than minnows, cannot find their way out.

On the 20th we had a change in the weather: a violent storm from the south-west occurred at noon, with hail of a strange form, the stones being sections of hollow spheres, half an inch across and upwards, formed of cones with truncated apices and convex bases; these cones were aggregated together with their bases outwards. The large masses were followed by a shower of the separate conical pieces, and that by heavy rain. On the mountains this storm was most severe; the stones lay at Darjeeling for seven days, congealed into masses of ice several feet long and a foot thick in sheltered places: at Purneah, fifty miles south, stones one and two inches across fell, probably as a whole spheres.

Ascending to Khersiong, I found the vegetation very backward by the roadsides. The rain had cleared the atmosphere, and the view over the plains was brilliant. On the top of the Khersiong spur a tremendous gale set in with a cold west wind: the storm cleared off at night,

*These traces of fossils are not sufficient to identify the formation with that of the Sewalik hills of North-west India; but its contents, together with its strike, dip and position relatively to the mountains, and its mineralogical character, incline me to suppose it may be similar. Its appearance in such small quantities in Sikkim (where it rises but a few hundred feet above the level of the sea, whereas in Kumaon it reaches 4,000 feet) may be attributed to the greater amount of wearing which it must have undergone; the plains from which it rises being 1,000 feet lower than those Kumaon, and the sea having consequently retired later, exposing the Sikkim sandstone to the effects of denudation for a much longer period. Hitherto no traces of this rock, or of any belonging to a similar geological epoch, have been found in the valleys of Sikkim; but when the narrowness of these is considered, it will not appear strange that such may have been removed from their surfaces: first, by the action of a tidal ocean; and afterwards, by that of tropical rains.

†Dr. M'Lelland informs me that in the Curruckpore hills, south of the Ganges, the clay-slates are overlain by beds of mica-slate, gneiss, and granite, which pass into one another.

which at 10 p.m. was beautiful, with forked and sheet lightning over the plains far below us. The equinoctial gales had now fairly set in, with violent south-east gales, heavy thunder, lightning and rain.

Whilst at Khersiong I took advantage of the very fair section afforded by the road from Punkabaree, to examine the structure of the spur, which seems to be composed of very highly inclined contorted beds (dip north) of metamorphic rocks, gneiss, mica-slate, clay-slate, and quartz; the foliation of which beds is parallel to the dip of the strata. Over all reposes a bed of clay, capped with a layer of vegetable mould, nowhere so thick and rich as in the more humid regions of 7,000 feet elevation. The rocks appeared in the following succession in descending: Along the top are found great blocks of very compact gneiss buried in clay. Half a mile lower the same rock appears, dipping north-north-east 50° . Below this, beds of saccharine quartz, with seams of mica, dip north-north-west 20° . Some of these quartz beds are folded on themselves, and look like flattened trunks of trees, being composed of concentric layers, each from two to four inches thick; we exposed twenty-seven feet of one fold running along the side of the road, which was cut parallel to the strike. Each layer of quartz was separated from its fellows by one of mica scales, and was broken up into cubical fragments, whose surfaces are no doubt cleavage and jointing-planes. I had previously seen, but not understood, such flexures produced by metamorphic action on masses of quartz when in a pasty state, in the Falkland Islands, where they have been perfectly well described by Mr. Darwin;‡ in whose views of the formation of these rocks I entirely concur.

The flexures of the gneiss are incomparably more irregular and confused than those of the quartz, and often contain flattened spheres of highly crystalline felspar, that cleave perpendicularly to the shorter axis. These spheres are disposed in layers parallel to the foliation of the gneiss; and are the result of a metamorphic action of great intensity, effecting a complete rearrangement and crystallization of the quartz and mica in parallel planes, whilst the felspar is aggregated in spheres; just as in the rearrangement of the mineral constituents of mica-schists the alumina is crystallized in the garnets, and in the clay-slates the iron into pyrites.

The quartz below this dips north-north-west 45° to 50° , and alternates with a very hard slaty schist, dipping north-west 45° , and still lower is a blue-grey clay-slate, dipping north-north-west 30° . These rest on the beds of slate, folded like the quartz mentioned above, but with cleavage-planes, forming lines radiating from the axis of each flexure, and running through all the concentric folds. Below this are the plumbago and clay slates of Punkabaree, which alternate with beds of mica-schist with garnets, and appear to repose immediately upon the carboniferous strata and sandstone; but there is much disturbance at the junction.

On re-ascending from Punkabaree, the rocks gradually appear more and more dislocated, the clay-slate less so than the quartz and mica-schist, and that again far less than the gneiss, which is so shattered and bent, that it is impossible to say what is *in situ*, and what not. Vast blocks lie superficially on the ridges; and the tops of all the outer mountains, as of Khersiong spur, of Tonglo, Sinchul, and Darjeeling appear a pile of such masses. Injected veins of quartz are rare in the lower beds of schist and clay-slate, whilst the gneiss is often full of them; and on the inner and loftier ranges, these quartz veins are replaced by granite with tourmaline.

Lime is only known as a stalactitic deposit from various streams, at elevations from 1,000 to 7,000 feet; one such stream occurs above Punkabaree, which I have not seen; another within the Sinchul range, on the great Rungeet

‡*Journal of Geological Society* for 1846, p. 267, and "*Voyage of the Beagle*".

APPENDIX III—*contd.*

river, above the exit of the Rummy; a third wholly in the great central Himalayan range, flowing into the Lachen river. The total absence of any calcareous rock in Sikkim, and the appearance of the deposit in isolated streams at such distant localities, probably indicates a very remote origin in the lime-charged waters.

From Khersiong to Darjeeling, gneiss is the only rock, and is often decomposed into clay-beds, 20 feet deep, in which the narrow, often zigzag, folia of quartz remain quite entire and undisturbed, whilst every trace of the foliation of the softer mineral is lost.

At Pachem, Darjeeling weather, with fog and drizzle, commenced, and continued for two days; we reached Darjeeling on the 24th of March, and found that the hail which had fallen on the 20th was still lying in great masses of crumbling ice in sheltered spots. The fall had done great damage to the gardens, and Dr. Campbell's tea-plants were cut to pieces.

We left Barfonchen on the 7th November (1849—A.M.), and ascended the river, near which we put up a woodcock. Emerging from the woods but Chumanako (Alt. 12,590 feet), where there is another stone but, the mountains become bleak, bare, and stony, and the rocks are all moutonné by ancient glaciers. At 13,000 feet the ground was covered with ice, and all the streams were frozen. Crossing several rocky ledges, behind which were small lakes, a gradual ascent led to the summit of the Chola pass, a broad low depression, 14,925 feet above the sea, wholly bare of snow.

Campbell had preceded me, and I found him conversing with some Tibetans, who told him that there was no road hence to Yakla and that we should not be permitted to go to Choombi. As the Chinese guard was posted in the neighbourhood, he accompanied one of the Tibetans to see the commandant, whilst I remained taking observations. The temperature was 33°, with a violent, biting, dry east wind. The rocks were gneiss, striking north-east, and horizontal, or dipping north-west. The scanty vegetation consisted chiefly of grass and *Sibbaldia*.

In about an hour Meepo and some of my people came up and asked for Campbell, for whom the Tchebu Lama was waiting below: the Lama had remained at Rungpo, endeavouring to put matters on a better footing with the Amlah. Wishing to see the Tibet guard myself, I accompanied the two remaining Tibetans down a steep valley with cliffs on either hand, for several hundred feet, when I was overtaken by some Sikkim sepoys in red jackets, who wanted to turn me back forcibly: I was at a loss to understand their conduct, and appealed to the Tibetan sepoys, who caused them to desist. About 1,000 feet down I found Campbell, with a body of about ninety Tibetans, a few of whom were armed with matchlocks, and the rest with bows and arrows. They were commanded by a Dingpun, a short swarthy man, with a flat-crowned cap with floss-silk hanging all round, and a green glass button in front; he wore a loose scarlet jacket, broadly edged with black velvet, and having great brass buttons of the Indian naval uniform; his subaltern was similarly dressed, buttons were those of the 44th Bengal Infantry. The commandant having heard of our wish to go round by Choombi, told Campbell that he had come purposely to inform him that there was no road that way to Yakla; he was very polite, ordering his party to rise and salute me when I arrived, and doing the same when we both left.

On our return we were accompanied by the Dingpun of the Tibetans and a few of his people, and were soon met by more Sikkim sepoys, who said they were sent from the Durbar to bring Campbell back to transact business: they behaved very rudely, and when still half a mile from the Sikkim frontier, jostled him and feigned to draw their knives, and one of them pointed a spear-headed bow to

his breast. Campbell defended himself with a stick and remonstrated with them on their rudeness; and I, who had nothing but a barometer in my hand, called up the Tibetans. The Dingpun came instantly, and driving the Sikkim people forward, escorted us to the frontier, where he took an inscribed board from the chait, and showing us the great vermilion seal of the Emperor of China (or more probably of the Lhasan authorities) on one side, and two small brown ones of the Sikkim Rajah on the other; and giving us to understand that here his jurisdiction ceased, he again saluted and left us.

On descending, I was surprised to meet the Singtam Soubah, whom I had not seen since leaving Tungu; he was seated on a rock, and I remarked that he looked ashy pale and haggard, and that he salaamed to me only, and not to Campbell; and that Tchebu Lama, who was with him, seemed very uncomfortable. The Soubah wanted Campbell to stop for a conference, which at such a time, and in such a wind, was impossible, so he followed us to Chumanako, where we proposed to pass the night.

A great party of Sikkim Bhoteeas had assembled here, all strangers to me: I certainly thought the concourse unusually large, and the previous conduct to Campbell, strange, rude, and quite unintelligible, especially before the Tibetans. But the Bhoteeas were always a queer, and often insolent people,¹ whom I was long ago tired of trying to understand, and they might have wanted to show off before their neighbours; and such was the confidence with which my long travels amongst them had inspired me, that the possibility of danger or violence never entered my head.

We went into the hut, and were resting ourselves on a log at one end of it, when, the evening being very cold, the people crowded in; on which Campbell went out, saying that we had better leave the hut to them, and that he would see the tents pitched. He had scarcely left, when I heard him calling loudly to me, "Hooker! Hooker! the savages are murdering me!" I rushed to the door, and caught sight of him striking with his fists, and struggling violently; being tall and powerful, he had already prostrated a few, but a host of men bore him down, and appeared to be trampling on him; at the same moment I was myself seized by eight men, who forced me back into the hut, and down on the log, where they held me in a sitting posture, pressing me against the wall; here I spent a few moments of agony, as I heard my friend's stifled cries grow fainter and fainter. I struggled but little, and that only at first, for at least five-and-twenty men crowded round and laid their hands upon me rendering any effort to move useless; they were however, neither angry nor violent, and signed to me to keep quiet. I retained my presence of mind, and felt comfort in remembering that I saw no knives used by the party who fell on Campbell, and that if their intentions had been murderous an arrow would have been the more sure and less troublesome weapon. It was evident that the whole animus was directed against Campbell, and that though at first alarmed on my own account, all the inferences which, with the rapidity of lightning my mind involuntarily drew, were favourable.

After a few minutes, three persons came into the hut, and seated themselves opposite to me. I only recognised two of them; namely, the Singtam Soubah, pale, trembling like a leaf, and with great drops of sweat trickling from his greasy brow; and the Tchebu Lama, stolid, but evidently under restraint, and frightened. The former ordered

¹Captain Pemberton, during his mission to Bhotan was repeatedly treated with the utmost insolence by the officials in that country (see Griffith's Journal). My Sirdar, Nimbo, himself a native of Bhotan, saw a good deal of the embassy when there, and told me many particulars as to the treatment to which it had been subjected, and the consequent low estimation in which both the ambassadors themselves and the Government whom they represented were held in Bhotan.

APPENDIX III—*contd.*

he men to leave hold of me, and to stand guard on either side, and, in a violently agitated manner, he endeavoured to explain that Campbell was a prisoner by the orders of the Rajah, who, was dissatisfied with his conduct as a Government officer during the past twelve years; and that he was to be taken to the Durbar and confined till the Supreme Government at Calcutta should confirm such articles as he should be compelled to subscribe to, he also wanted to know from me how Campbell would be likely to behave. I refused to answer any questions till I should be informed why I was myself made prisoner, on which he went away, leaving me still guarded. My own Sirdar then explained that Campbell had been knocked down, tied hand and foot, and taken to his tent, and that all his coolies were also bound, our captors claiming them as Sikkimites, and subjects of the Rajah.

Shortly afterwards the three returned, the Soubah looking more spectral than ever, and still more violently agitated, and I thought I perceived that whatever were his plans he had failed in them. He asked me what view the Governor-General would take of this proceeding, and receiving no answer, he went off with the Tchebu Lama, and left me with the third individual. The latter looked steadily at me for some time, and then asked if I did not know him. I said I did not, when he gave his name as Dingpun Tinli, and I recognised in him one of the men whom the Dewan had sent to conduct us to the top of Mainom the previous year. This opened my eyes a good deal, for he was known to be a right hand man of the Dewan, and had within a few months been convicted of kidnapping two Brahmin girls from Nepal,¹ and had vowed vengeance against Campbell for the duty he performed in bringing him to punishment.

I was soon asked to go to my tent, which I found pitched close by; they refused me permission to see my fellow-prisoner, or to be near him, but allowed me to hang up my instruments, and arrange my collections. My guards were frequently changed during the night, Lepchas often making a turn; they repeatedly assured me that there was no complaint or ill-feeling against me, that the better classes in Sikkim would be greatly ashamed of the whole affair, that Tchebu Lama was equally a prisoner, and that the grievances against Campbell were of a political nature, but what they were they did not know.

The night was very cold (thermometer 26°), and two inches of snow fell. I took as many of my party as I could into my tent, they having no shelter fit for such an elevation (12,590 feet) at this season. Through the connivance of some of the people, I managed to correspond with Campbell, who afterwards gave me the following account of the treatment he had received. He stated that on leaving the hut he had been met by Meepo, who told him the Soubah had ordered his being turned out. A crowd of sepoys then fell on him and brought him to the ground, knocked him on the head, trampled on him, and pressed his neck down to his chest as he lay, as if endeavouring to break it. His feet were tied, and his arms pinioned behind, the wrist of the right hand being bound to the left arm above the elbow; the cords were then doubled, and he was violently shaken. The Singtam Soubah directed all this, which was performed chiefly by the Dingpun Tinli and Jongpun Sangabadoo.² After this the Soubah came to me as I have related; and returning, had Campbell brought bound before him, and asked him, through Tchebu Lama, if he would write from dictation. The Soubah was violent, excited, and nervous; Tchebu

Lama scared. Campbell answered, that if they continued torturing him (which was done by twisting the cords round his wrist with a bamboo-wrench), he might say or do anything, but that his Government would not confirm any acts thus extorted. The Soubah became still more violent, shook his bow in Campbell's face, and drawing his hand significantly across his throat, repeated his questions, adding others, inquiring why he had refused to receive the Lassoo Kajee as Vakeel, etc.

The Soubah's people, meanwhile, gradually slunk away, seeing which he left Campbell, who was taken to his tent.

Early next morning Meepo was sent by the Soubah, to ask whether I would go to Yakla pass, or return to Darjeeling, and to say that the Rajah's orders had been strict that I was not to be molested, and that I might proceed to whatever passes I wished to visit, whilst Campbell was to be taken back to the Durbar, to transact business. I was obliged to call upon the Soubah and Dingpun to explain their conduct of the previous day, which they declared arose from no ill-feeling, but simply from their fear of my interfering in Campbell's behalf; they could not see what reason I had to complain, so long as I was neither hurt nor bound. I tried in vain to explain to them that they could not so play fast and loose with a British subject, and insisted that if they really considered me free, they should place me with Campbell, under whose protection I considered myself, he being still the Governor-General's agent.

Much discussion followed this: Meepo urged me to go on to Yakla, and leave these bad people; and the Soubah and Dingpun, who had exceeded their orders in laying hands on me, both wished me away. My course was, however, clear as to the propriety of keeping as close to Campbell as I was allowed, so they reluctantly agreed to take me with him to the Durbar.

Tchebu Lama came to me soon afterwards, looking as stolid as ever, but with a gulping in his throat; he alone was glad I was going with them, and implored me to counsel Campbell not to irritate the Amlah by a refusal to accede to their dictates, in which case his life might be the forfeit. As to himself, the opposite faction has now got the mastery, there was nothing for it but to succumb, and his throat would surely be cut. I endeavoured to comfort him with the assurance that they dared not hurt Campbell, and that this conduct of a party of ruffians, influenced by the Dewan and their own private pique, did not represent his Rajah's feelings and wishes, as he himself knew; but the poor fellow was utterly unnerved, and shaking hands warmly, with his eyes full of tears, he took his leave.

We were summoned by the Dingpun to march at 10 a.m.: I demanded an interview with Campbell first, which was refused; but I felt myself pretty safe and insisting upon it, he was brought to me. He was sadly bruised about the head, arms, and wrists, walked very lame, and had a black eye to boot, but he was looking stout and confident.

I may here mention that seizing the representative of a neighbouring power and confining him till he shall have become amenable to terms, is a common practice along the Tibet, Sikkim, and Bhotan frontiers. It had been resorted to in 1847, by the Bhotanese, under the instructions of the Paro Pilo, who waylaid the Sikkim Rajah when still in Tibet, on his return from Jigatzi, and beleaguered him for two months, endeavouring to bring him to their terms about some border dispute; on this occasion the Rajah applied to the British Government for assistance, which was refused; and he was ultimately rescued by a Tibetan force.

In the present case the Dewan issued orders that Campbell was to be confined at Tumloong till he himself should arrive there; and the Rajah was kept in ignorance of the affair. The Sepoys who met us on our approach to Tumloong on the 3rd of November, were, I suspect, originally sent for the purpose; and I think that the Amlah

¹This act, was not only a violation of the British treaty, but an outrage on the religion of Nepal. Jung Bahadoor demanded instant restitution, which Campbell effected; thus incurring the Dingpun's wrath, who lost, besides his prize, a good deal of money which the escapade cost him.

²This was the other man sent with us to Mainom, by the Dewan, in the previous December.

APPENDIX III—*contd.*

also had followed us to Rungpo with the same object. Their own extreme timidity, and the general good-feeling in the country towards Campbell prevented its execution before, and, as a last resource, they selected the Singtam Soubah and Dingpun Tinli for the office, as being personally hostile to him. The Dewan meanwhile being in Tibet, and knowing that we were about to visit the frontier, for which I had full permission and escort, sent up the Tibetan guard, hoping to embroil them in the affair; in this he failed, and it drew upon him the anger of the Lhassan authorities.¹ The Soubah, in endeavouring to extort the new treaty by force, and the Dingpun, who had his own revenge to gratify, exceeded their instructions in using violence towards Campbell, whom the Dewan ordered should be simply taken and confined; they were consequently disgraced, long before we were released, and the failure of the stratagem thrown upon their shoulders.

During the march down to Laghep, Campbell was treated by the Dingpun's men with great rudeness. I kept as near as I was allowed, quietly gathering rhododendron seeds by the way. At the camping-ground we were again separated at which I remonstrated with the Dingpun, also complaining of his people's insolent behaviour towards their prisoner, which he promised should be discontinued.

• The next day we reached Rungpo, where we halted for further instructions: our tents were placed apart, but we managed to correspond by stealth. On the 10th of November we were conducted to Tumloong. A pony was brought for me, but I refused it, on seeing that Campbell was treated with great indignity, and obliged to follow at the tail of the mule ridden by the Dingpun, who thus marched him in triumph up to the village.

I was taken to a house at Phadong, and my fellow traveller was confined in another at some distance to the eastward, a stone's throw below the Rajah's; and thrust into a little cage-like room. I was soon visited by an old Lama, who assured me that we were both perfectly safe, but that there were many grievances against Campbell. The Soubah arrived shortly after, bringing me compliments, nominally in the Rajah's name, and a substantial present, consisting of a large cow, sheep, fowls, a brick of tea, bags of rice, flour, butter, eggs, and a profusion of vegetables. I refused to take them on the friendly terms on which they were brought, and only accepted them as provisions during my detention. I remonstrated again about our separation, and warned the Soubah of the

inevitable consequence of this outrage upon the representative of a friendly power, travelling under the authority of his own Government, unarmed and without escort: he was greatly perplexed, and assured me that Campbell's detention was only temporary, because he had not given satisfaction to the Rajah, and as the latter could not get answers to his demands from Calcutta in less than a month, it was determined to keep him till then; but to send me to Darjeeling. He returned in the evening to tell me that Campbell's men (with the exception only of the Ghorkas²) had been seized, because they were runaway slaves from Sikkim; but that I need not alarm myself, for mine should be untouched.

The hut being small, and intolerably dirty, I pitched my tent close by, and lived in it for seven days: I was not guarded, but so closely watched, that I could not go out for the most trifling purpose, except under surveillance. They were evidently afraid of my escaping; I was however treated with civility, but forbidden to communicate either with Campbell or with Darjeeling.

The Soubah frequently visited me, always protesting I was no prisoner, that Campbell's seizure was a very trifling affair, and the violence employed all a mistake. He always brought presents, and tried to sound me about the Government at Calcutta. On the 12th he paid his last visit, looking woefully dejected, being out of favour at court, and dismissed to his home: he referred me to Meepo for all future communications to the Rajah, and bade me a most cordial farewell, which I regretted being unable to return with any show of kind feeling. Poor fellow! he had staked his last, and lost it, when he undertook to seize the agent of the most powerful Government in the east, and to reduce him to the condition of a tool of the Dewan. Despite the many obstructions he had placed in my way, we had not fallen out since July; we had been constant companions, and though at issue, never at enmity. I had impeached him, and my grievances had been forwarded to the Rajah with a demand for his punishment, but he never seemed to owe me a grudge for that, knowing the Rajah's importance as compared with the power of the Dewan whom he served; and, in common with all his party, presuming on the unwillingness of the British Government to punish.

On the 13th of November I was hurriedly summoned by Meepo to the Phadong temple, where I was interrogated by the Amlah, as the Rajah's councillors (in this instance the Dewan's adherents) are called. I found four China mats placed on a stone bench, on one of which I was requested to seat myself, the others being occupied by the Dewan's elder brother, a younger brother of the Gangtok Kajee (a man of some wealth), and an old Lama; the conference took place in the open air and amongst an immense crowd of Lamas, men, women, and children.

I took the initiative (as I made a point of doing on all such occasions) and demanded proper interpreters, which were refused; and the Amlah began a rambling interrogatory in Tibetan, through my Lepcha Sirdar Pakshok, who spoke very little Tibetan or Hindostanee, and my half-caste servant, who spoke as little English. The Dewan's brother was very nervously counting his beads, and never raised his eyes while I kept mine steadily upon him.

He suggested most of the queries every one of which took several minutes, as he was constantly interrupted by the Kajee, who was very fat and stupid: the Lama scarcely spoke, and the bystanders never. My connection with the Indian Government was first enquired into; next they came to political matters, upon which I declined entering; but I gathered that their object was to oblige

¹In the following summer (1850), when the Rajah, Dewan, and Soubah repaired to Choombi, the Lhassan authorities sent a Commissioner to inquire into the affair, understanding that the Dewan had attempted to embroil the Tibetans in it. The Commissioner asked the Rajah why he had committed such an outrage on the representative of the British Government, under whose protection he was; thus losing his territory, and bringing English troops so near the Tibet frontier. The Rajah answered that he never did anything of the kind; that he was old and infirm, and unable to transact all his affairs; that the mischief had arisen out of the acts and ignorance of others, and finally begged the Commissioner to investigate the whole affair, and satisfy himself about it. During the inquiry that followed, the Dewan threw all the blame on the Tibetans, who, he said, were along implicated: this assertion was easily disproved, and on the conclusion of the inquiry, the Commissioner railed vehemently at the Dewan, saying: "You tried to put this business on the people of my country; it is an abominable lie. You did it yourselves, and no one else. The Company is a great monarchy; you insulted it, and it has taken its revenge. If you, or any other Tibetan, ever again cause a rupture with the English, you shall be taken with ropes round your necks to Peking, there to undergo the just punishment of your offence under the sentence of the mighty Emperor."

²These people stood in far greater fear of the Nepalese than of the English, and the reason is obvious: the former allowed no infraction of their rights to pass unnoticed, whereas we had permitted every article of our treaty to be contravened.

APPENDIX III—contd.

Campbell to accept the Lasso Kajee as Vakeel, to alter the slavery laws, to draw a new boundary line with Nepal, to institute direct communication between themselves and the Governor-General,¹ and to engage that there should be no trade or communication between Sikkim and India, except through the Dewan: all of these subjects related to the terms of the original treaty between the Rajah and the Indian Government. They told me they had sent these proposals to the Government through Darjeeling,² but had received no acknowledgment from the latter place, and they wanted to know the probable result at Calcutta. As the only answer I could give might irritate them, I again declined giving any. Lastly, they assured me that no blame was imputed to myself, that on the contrary I had been travelling under the Rajah's protection, who rejoiced in my success, that I might have visited Yakla pass as I had intended doing, but that preferring to accompany my friend, they had allowed me to do so, and that I might now either join him, or continue to live in my tent: of course I joyfully accepted the former proposal. After being refused permission to send a letter to Darjeeling, except I would write in a character which they could read, I asked if they had anything more to say, and being answered in the negative, I was taken by Meepo to Campbell, heartily glad to end a parley which had lasted for an hour and a half.

I found my friend in good health and spirits, strictly guarded in a small thatched hut, of bamboo wattle and clay: the situation was pretty, and commanded a view of the Ryott valley and the snowy mountains; there were some picturesque chaits hard by, and a blacksmith's forge. Our walks were confined to a few steps in front of the hut, and included a puddle and a spring of water. We had one black room with a small window, and a fire in the middle on a stone; we slept in the narrow apartment behind it, which was the cage in which Campbell had been at first confined, and which exactly admitted us both, lying on the floor. Two or three Sepoys occupied an adjoining room, and had a peep-hole through the partition-wall.

My gratification at our being placed together was damped by the seizure of all my faithful attendants except my own servant, and one who was a Nepalese: the rest were bound, and placed in the stocks and close confinement, charged with being Sikkim people who had no authority to take service in Darjeeling. On the contrary they were all registered as British subjects, and had during my travels been recognised as such by the Rajah and all his authorities. Three times the Soubah and others had voluntarily assured me that my person and people were inviolate, nor was there any cause for this outrage but the fear of their escaping with news to Darjeeling, and possibly a feeling of irritation amongst the authorities at the failure of their schemes. Meanwhile we were not allowed to write, and we heard that the bag of letters which we had sent before our capture had been seized and

burnt. Campbell greatly feared that they would threaten Darjeeling with a night attack,³ as we heard that the Lasso Kajee was stationed at Namtchi with a party for that purpose, and all communications cut off except through him.

CHAPTER XXVI

Dr. Campbell is ordered to appear at Durbar—Lamas called threats—Scarcity of food—Arrival of Dewan—Our jailer, Thoba-sing—Temperature, etc., at Tumloong—Services of Goompas—Lepcha girl—Jew's-harp—Terror of servants—Nam-sing's family—Interview with Dewan—Remonstrances—Dewan feigns sickness—Lord Dalhousie's letter to Rajah—Treatment of Indo-Chinese—Concourse of Lamas—Visit of Tchebu Lama—Close confinement—Dr. Campbell's illness—Conference with Amlah—Relaxation of confinement—Pemiongchi Lama's intercession—Escape of Nimbo—Presents from Rajah, Rance and people—Protestations of friendship—Mr. Lushington sent to Darjeeling—Leave Tumloong—Cordial farewell—Dewan's merchandise—Gangtok Kajee—Dewan's pomp—Governor-General's letter—Dikkee-ling—Suspicion of poison—Dinner and pills—Tobacco—Bhotanese colony—Katong-ghat on Teesta—Wild lemons—Sepoys' insolence—Dewan alarmed—View of Darjeeling—Threats of a rescue—Fears of our escape—Tibet flutes—Negotiate our release—Arrival at Darjeeling—Dr. Thomson joins me—Movement of troops at Darjeeling—Seizure of Rajah's Terai property.

Since his confinement, Dr. Campbell had been desired to attend the Durbar for the purpose of transacting business, but had refused to go, except by compulsion, considering that in the excited state of the authorities, amongst whom there was not one person of responsibility or judgement, his presence would not only be useless, but he might be exposed to further insult or possibly violence.

On the 15th of November we were informed that the Dewan was on his way from Tibet: of this we were glad, for knave as he was, we had hitherto considered him to possess sense and understanding. His agents were beginning to find out their mistake, and summoned to council the principal Lamas and Kajees of the country, who, to a man, repudiated the proceedings, and refused to attend. Our captors were extremely anxious to induce us to write letters to Darjeeling, and sent spies of all kinds to offer us facilities for secret correspondence. The simplicity and clumsiness with which these artifices were attempted would have been ludicrous under other circumstances; while the threat or murdering Campbell only alarmed us, inasmuch as it came from people too stupid to be trusted. We made out that all Sikkim people were excluded from Darjeeling and the Amlah consequently could not conceal their anxiety to know what had been fallen their letters to Government.

³Threats of sacking Darjeeling had on several previous occasions been made by the Dewan, to the too great alarm of the inhabitants, who were ignorant of the timid and pacific disposition of the Lepchas, and of the fact that there are not fifty muskets in the country, nor twenty men able to use them. On this occasion the threats were coupled with the report that we were murdered, and that the Rajah had asked for 50,000 Tibetan soldiers, who were being marched twenty-five days' journey over passes 15,000 feet high, and deep in snow, and were coming to drive the English out of Sikkim! I need hardly observe that the Tibetans (who have repeatedly refused to interfere on this side of the snows) had no hand in the matter, or that, supposing they could collect that number of men in all Tibet, it would be impossible to feed them for a week, there or in Sikkim. Such reports unfortunately spread a panic in Darjeeling: the guards were called in from all the outposts, and the ladies huddled into one house, whilst the males stood on the defensive; to the great amusement of the Amlah at Tumloong, whose insolence to us increased proportionally.

¹They were prompted to demand this by an unfortunate oversight that occurred at Calcutta some years before. Vakeels from the Sikkim Durbar repaired to that capital, and though unaccredited by the Governor-General's Agent at Darjeeling, were (in the absence of the Governor-General) received by the President of the Council in open Durbar. The effect was of course to reduce the Governor-General's Agent at Darjeeling to a cipher.

²These letters, which concluded with a line stating that Campbell was detained at Tumloong till favourable answers should be received, had arrived at Darjeeling, but being written in Tibetan, and containing matters into which no one but Campbell could enter, they were laid on one side till his return. The interpreter did not read the last line, which stated that Dr. Campbell was detained till answers were received, and the fact of our capture and imprisonment therefore remained unknown for several weeks.

APPENDIX III—contd.

Meanwhile we were but scantily fed, and our imprisoned coolies got nothing at all. Our guards were supplied with a handful of rice or meal as the day's allowance; they were consequently grumbling,¹ and were daily reduced in number. The supplies of rice from the Terai, beyond Darjeeling, were cut off by the interruption of communication, and the authorities evidently could not hold us long at this rate: we sent up complaints, but of course received no answer.

The Dewan arrived in the afternoon in great state, carried in an English chair given him by Campbell some years before, habited in a blue silk cloak lined with lambskin, and wearing an enormous straw hat with a red tassel, and black velvet butterflies on the flapping brim. He was accompanied by a household of women, who were laden with ornaments, and wore boots, and sat astride on ponies; many Lamas were also with him, one of whom wore a broad Chinese-like hat covered with polished copper foil. Half a dozen Sepoys with matchlocks preceded him, and on approaching Tumloong, bawled out his titles, dignities, etc., as was formerly the custom in England.

At Darjeeling our seizure was still unknown: our letters were brought to us, but we were not allowed to answer them. Now that the Dewan had arrived, we hoped to come to a speedy explanation with him, but he shammed sickness, and sent no answer to our messages, if indeed he received them. Our guards were reduced to one Sepoy with a knife who was friendly; and a dirty, cross-eyed fellow Thoba-sing, who, with the exception of Tchebu Lama, was the only Bhoteca about the Durbar who could speak Hindostanee, and who did it very imperfectly: he was our attendant and spy, the most barefaced liar I ever met with, even in the east; and as cringing and obsequious when alone with us, as he was to his masters on other occasions, when he never failed to show off his authority over us in an offensive manner. Though he was the most disagreeable fellow we were ever thrown in contact with, I do not think that he was therefore selected, but solely from his possessing a few words of Hindostanee, and his presumed capability of playing the spy.

The weather was generally drizzling or rainy, and we were getting very tired of our captivity; but I beguiled the time by carefully keeping my meteorological register,² and

¹The Rajah has no standing army; not even a body-guard, and these men were summoned to Tumloong before our arrival, they had no arms and received no pay, but were fed when called out on duty. There is no store for grain, no bazar or market, in any part of the country, each family growing little enough for its own wants and no more; consequently Sikkim could not stand on the defensive for a week. The Rajah receives his supply of grain in annual contributions from the peasantry, who thus pay a rent in kind, which varies from little to nothing, according to the year, etc. He had also property of his own in the Terai, but the slender proceeds only enabled him to trade with Tibet for tea, etc.

²During the thirty days spent at Tumloong, the temperature was mild and equable, with much cloud and drizzle, but little hard rain; and we experienced violent thunder-storms, followed by transient sunshine. Unlike 1848, the rains did not cease this year before the middle of December; nor had there been one fine month since April. The mean temperature, computed from 150 observations, was 50°2' and from the maximum and minimum thermometer 49°6', which is a fair approximation to the theoretical temperature calculated for the elevation and month, and allows a fall of 1° for 320 feet of ascent. The temperature during the spring (from 50 observations) varied during the day from 2°4' to 5°8' higher than that of the air, and greatest differences occurring morning and evening. The barometric tide amounted to 0.091 between 9.50 a.m., and 4 p.m., which is less than at the level of the plains of India, and more than at any greater elevation than Tumloong. The air

by reducing many of my previous observations. Each morning we were awakened at daybreak by the prolonged echoes of conches, trumpets, and cymbals, beaten by the priests before the many temples in the valley: wild and pleasing sounds, often followed by their choral chants. After dark we sat over the fire, generally in company with a little Lepcha girl, who was appointed to keep us in fire-wood, and who sat watching our movements with childish curiosity. Dolly, as we christened her, was a quick child and a kind one, intolerably dirty, but very entertaining from her powers of mimicry. She was fond of hearing me, whistle airs, and procured me a Tibetan Jews'-harp,³ with which, and coarse tobacco, which I smoked out of a Tibetan brass pipe, I wiled away the dark evenings, whilst my cheerful companion amused himself with an old harmonicon, to the enchantment of Dolly and our guards and neighbours.

The messengers from Darjeeling were kept in utter ignorance of our confinement till their arrival at Tumloong, when they were cross-questioned, and finally sent to us. They gradually became too numerous, there being only one apartment for ourselves, and such of our servants as were not imprisoned elsewhere. Some of them were frightened out of their senses, and the state of abject fear and trembling in which one Limboo arrived, and continued for nearly a week, was quite distressing⁴ to every one except Dolly, who mimicked him in a manner that was irresistibly ludicrous. Whether he had been beaten or threatened we could not make out, nor whether he had heard of some dark fate impending over ourselves—a suspicion which would force itself on our minds; especially as Thoba-sing had coolly suggested to the Amlah the dispatching of Campbell, as the shortest way of getting out of the scrape! We were also ignorant whether any steps were being taken at Darjeeling for our release, which we felt satisfied must follow any active measures against these bullying cowards, though they themselves frequently warned us that we should be thrown into the Teesta if any such were pursued.

So long as our money lasted, we bought food, for the Durbar had none to give; and latterly my ever charitable companion fed our guards, including Dolly and Thoba-sing, in pity to their pinched condition. Several families sent us small presents, especially that of the late estimable Dewan, Nam-sing, whose widow and daughters lived close by, and never failed to express in secret their sympathy and good feeling.

Tchebu Lama's and Meeop's families were equally forward in their desire to serve us; but they were marked men, and could only communicate by stealth.

Our coolies were released on the 18th, more than half starved, but the Sirdars were still kept in chains or the stocks: some were sent back to Darjeeling, and the British subjects billeted off amongst the villagers, and variously employed by the Dewan: my lad, Cheytoong, was set to

was always damp, nearly saturated at night, and the mean amount of humidity for ninety-eight observations taken during the day was only 0.850, corresponding to a dew-point, of 49°6', or 5°2' below that of the air.

³This instrument (which is common in Tibet) is identical with the European except that the tongue is produced behind the bow, in a strong steel spike, by which the instrument is held firmer to the mouth.

⁴It amounted to a complete prostration of bodily and mental powers: the man trembled and startled when spoken to, or at any noise, a cold sweat constantly bedewed his forehead, and he continued in this state for eight days. No kindness on Campbell's part could rouse him to give any intelligible account of his fears or their cause. His companions said he had lost his goroo, i.e., his charm, which the priest gives him while yet a child, and which he renews or gets re-sanctified as occasion requires. To us the circumstance was extremely painful.

APPENDIX III—*contd.*

collect the long leaves of a *Tupristra*, called "Purphiok", which yield a sweet juice, and were chopped up and mixed with tobacco for the Dewan's hookah.

November 20th

The Dewan, we heard this day, ignored all the late proceedings, professing to be enraged with his brother and the Amlah, and refusing to meddle in the matter. This was no doubt a pretence: we had sent repeatedly for an explanation with himself or the Rajah, from which he excused himself on the plea of ill-health, till this day, when he apprised us that he would meet Campbell, and a cotton tent was pitched for the purpose.

We went about noon, and were received with great politeness and shaking of hands by the Dewan, the young Gangtok Kajee, and the old monk who had been present at my examination at Phadong. Tehebu Lama's brother was also there, as a member of the Amlah, lately taken into favour; while Tehebu himself acted as interpreter, the Dewan speaking only Tibetan. They all sat cross-legged on a bamboo bench on one side, and we on chairs opposite them: walnuts and sweetmeats were brought for us, and a small present in the Rajah's name, consisting of rice, flour and butter.

The Dewan opened the conversation both in this and another conference, which took place on the 22nd, by requesting Campbell to state his reasons for having desired these interviews. Neither he nor the Amlah seemed to have the smallest idea of the nature and consequences of the acts they had committed, and they therefore anxiously sought information as to the view that would be taken of them by the British Government. They could not see why Campbell should not transact business with them in his present condition, and wanted him to be the medium of communication between themselves and Calcutta. The latter confined himself to pointing out his own views of the following subjects: (1) The seizing and imprisoning of the agent of a friendly power, travelling unarmed and without escort, under the formal protection of the Rajah, and with the authority of his own Government. (2) The aggravation of this act of the Amlah, by our present detention under the Dewan's authority. (3) The chance of collision, and the disastrous consequences of a war, for which they had no preparation of any kind. (4) The impossibility of the supreme Government paying any attention to their letters so long as we were illegally detained.

All this sank deep into the Dewan's heart: he answered, "You have spoken truth, and I will submit it all to the Rajah"; but at the same time he urged that there was nothing dishonourable in the imprisonment, and that the original violence being all a mistake, it should be overlooked by both parties. We parted on good terms, and heard shortly after the second conference that our release was promised and arranged; when a communication¹ from Darjeeling changed their plans, the Dewan conveniently fell sick on the spot, and we were thrown back again.

In the meantime, however, we were allowed to write to our friends, and to receive money and food, of which we stood in great need. I transmitted a private account of the whole affair to Lord Dalhousie, who was unfortunately at Bombay, but to whose prompt and vigorous measures we were finally indebted for our release. His Lordship expedited a despatch to the Rajah, such as the latter was accustomed to receive from Nepal, Bhotan, or Lhasa, and

such as alone commands attention from these half-civilised Indo-Chinese, who measure power by the firmness of the tone adopted towards them; and who, whether in Sikkim, Birmah, Siam, Bhotan, or China, have too long been accustomed to see every article of our treaties contravened, with no worse consequences than a protest or a threat, which is never carried into execution till some fatal step calls forth the dormant power of the British Government.²

The end of the month arrived without bringing any prospect of our release, whilst we were harassed by false reports of all kinds. The Dewan went on the 25th to a hot bath a few hundred feet down the hill: he was led past our hut, his burly frame tottering as if in great weakness, but more transparent fraud could not have been practised: he was, in fact, lying on his oars, pending further negotiations. The Amlah proposed that Campbell should sign a bond, granting immunity from all past offences on their part, whilst they were to withdraw the letter of grievances against him. The Lamas cast horoscopes for the future, little presents continually arrived for us, and the Ranee sent me some tobacco, and to Campbell brown sugar and Murwa beer. The blacksmiths, who had ostentatiously been making long knives at the forge hard by, were dismissed; troops were said to be arriving at Darjeeling, and a letter sternly demanding our release had been received.

The Lamas of Pemiongechi, Changachelling, Tassiding, &c., and the Dewan's enemies, and Tehebu Lama's friends, began to flock from all quarters to Tumloong, demanding audience of the Rajah, and our instant liberation. The Dewan's game was evidently up; but the timidity of his opponents, his own craft, and the habitual dilatoriness of all, contributed to cause endless delays. The young Gangtok Kajee tried to curry favour with us, sending word that he was urging our release, and adding that he had some capital ponies for us to see on our way to Darjeeling! Many similar trifles showed that these people had not a conception of the nature of their position, or of that of an officer of the British Government.

The Tehebu Lama visited us only once, and then under surveillance; he renewed his professions of good faith, and we had every reason to know that he had suffered severely for his adherence to us, and consistent repudiation of the Amlah's conduct; he was in great favour with his brother Lamas, but was not allowed to see the Rajah, who was said to trust to him alone of all his councillors. He told us that peremptory orders had arrived from Calcutta for our release, but that the Amlah had replied that they would not acknowledge the despatch, from its not bearing the Governor-General's great seal! The country-people refusing to be saddled with the keep of our coolies, they were sent to Darjeeling in small parties, charged to say that we were free, and following them.

The weather continued rainy and bad, with occasionally a few hours of sunshine, which, however, always rendered the ditch before our door offensive: we were still prevented leaving the hut, but as a great annual festival was going on, we were less disagreeably watched. Campbell was very unwell, and we had no medicine; and as the Dewan, accustomed to such duplicity himself, naturally took this for a ruse, and refused to allow us to send to Darjeeling for any, we were more than ever convinced that his own sickness was simulated.

¹I need scarcely say that every step was taken at Darjeeling for our release, that the most anxious solicitude for our safety could suggest. But the first communication to the Rajah, though it pointed out the heinous nature of his offence, was, through a natural fear of exasperating our captors, couched in very moderate language. The particulars of our seizure, and the reasons for it, and for our further detention, were unknown at Darjeeling, or a very different line of policy would have been pursued.

²We forget that all our concessions to these people are interpreted into weakness; that they who cannot live on an amicable equality with one another, cannot be expected to do so with us; that all our talk of power and resources are mere boasts to habitual bullies, so long as we do not exert ourselves in the correction of premeditated insults. No Government can be more tolerant, more sincerely desirous of peace, and more anxious to confine its sway within its own limits than that of India, but it can only continue at peace by demanding respect, and the punctilious enforcement of even the most trifling terms in the treaties it makes with Indo-Chinese.

APPENDIX III—*contd.*

On the 2nd and 3rd December we had further conferences with the Dewan, who said that we were to be taken to Darjeeling in six days, with two Vakeels from the Rajah. The Pemiongechi Lama, as the oldest and most venerated in Sikkim, attended and addressed Campbell in a speech of great feeling and truth. Having heard, he said, of these unfortunate circumstances a few days ago, he had come on feeble limbs, and though upwards of seventy winters old, as the representative of his holy brotherhood to tender advice to his Rajah, which he hoped would be followed. Since Sikkim had been connected with the British rule, it had experienced continued peace and protection; whereas before they were in constant dread of their lives and properties, which, as well as their most sacred temples, were violated by the Nepalese and Bhotanese. He then dwelt upon Campbell's invariable kindness and good feeling, and his exertions for the benefit of their country, and for the cementing of friendship, and hope he would not let these untoward events induce an opposite course in future; but that he would continue to exert his influence with the Governor-General in their favour.

The Dewan listened attentively; he was anxious and perplexed, and evidently losing his presence of mind: he talked to us of Lhasa and its gaieties, dromedaries, Lamas, and everything Tibetan; offered to sell us ponies cheap, and altogether behaved in a most undignified manner; ever and anon calling attention to his pretended sick leg, which he nursed on his knee. He gave us the acceptable news that the government at Calcutta had sent up an officer to carry on Campbell's duties which had alarmed him exceedingly. The Rajah, we were told, was very angry at our seizure and detention; he had no fault to find with the Governor-General's agent, and hoped he would be continued as such. In fact, all the blame was thrown on the brothers of the Dewan and of the Gangtok Kajee, and more irresponsible stupid bores could not have been found on whom to lay it, or who would have felt less inclined to commit such folly if it had not been put on them by the Dewan. On leaving, white silk scarfs were thrown over our shoulders, and we went away, till doubtful, after so many disappointments, whether we should really be set at liberty at the stated period.

Although there was so much talk about our leaving, our confinement continued as rigorous as ever. The Dewan carried favour in every other way, sending us Tibetan wares for purchase, with absurd prices attached, he being an arrant pedlar. All the principal families waited on us, desiring peace and friendship. The coolies who had not been dismissed were allowed to run away, except my Bhotan Sirdar, Nimbo, against whom the Dewan was inveterate; he, however, managed soon afterwards to break a great chain with which his legs were shackled, and marching at night, eluded a hot pursuit, and proceeded to the Teesta, swam the river, and reached Darjeeling in eight days; arriving with a large iron ring on each leg, and a link of several pounds weight attached to one.

Parting presents arrived from the Rajah on the 7th, consisting of ponies, cloth, silks, woollens, immense squares of butter, tea, and the usual *et ceteras*, to the utter impoverishment of his stores: these he offered to the two Sahibs, "in token of his amity with the British Government, his desire for peace, and deprecation of angry discussions". The Ranee sent silk purses, fans and such Tibetan paraphernalia, with an equally amicable message, that "she was most anxious to avert the consequences of whatever complaints had gone forth against Dr. Campbell, who might depend on her strenuous exertions to persuade the Rajah to do whatever he wished!" These friendly messages were probably evoked by the information that an English regiment, with three guns, was on its way to Sikkim, and

that 300 of the Bhaugulpore Rangers had already arrived there. The Government of Bengal sending another agent² to Darjeeling, was also a contingency they had not anticipated, having fully expected to get rid of any such obstacle to direct communication with the Governor-General.

A present from the whole population followed that of the Ranee, coupled with earnest entreaties that Campbell would resume his position at Darjeeling; and on the following day forty coolies mustered to arrange baggage. Before we left, the Ranee sent three rupees to buy a yard of chale and some gloves, accompanying them with a present of white silk, &c., for Mrs. Campbell, to whom the commission was entrusted a singular instance of the *insouciant* simplicity of these odd people.

The 9th of December was a splendid and hot day, one of the very few we had during our captivity. We left at noon, descending the hill through an enormous crowd of people, who, brought farewell presents, all wishing us well. We were still under escort as prisoners of the Dewan, who was coolly marching a troop of forty unloaded mules and ponies, and double that number of men's loads of merchandise, purchases, during the summer in Tibet, to trade with at Darjeeling and the Titalya fair! His impudence or stupidity was thus quite inexplicable; treating us as prisoners, ignoring every demand of the authorities at Darjeeling, of the Supreme Council of Calcutta, and of the Governor-General himself; and at the same time acting as if he were to enter the British territories on the most friendly and advantageous footing for himself and his property, and incurring so great an expense in all this as to prove that he was in earnest in thinking so.

Tehebu Lama accompanied us, but we were allowed to converse with him. We halted at the bottom of the valley, where the Dewan invited us to partake of tea; from this place he gave us mules³ or ponies to ride, and we ascended to Waukoong, a village 3,867 feet above the sea. On the following day we crossed a high ridge from the Ryott valley to that of the Rungmi; where we camped at Tikhotang (Alt. 3,763 feet), and on the 11th at Gangtok Sampoo, a few miles lower down the same valley.

We were now in the Soubahship of the Gangtok Kajee, a member of the oldest and most wealthy family in Sikkim; he had from the first repudiated the late acts of the Amlah, in which his brother had taken part, and had always been hostile to the Dewan. The latter conducted himself with disagreeable familiarity towards us, and *hauteur* towards the people; he was preceded by immense kettle-drums, carried on men's backs, and great hand-bells, which were beaten and rung on approaching villages; on which occasions he changed his dress of sky-blue for yellow silk robes worked with Chinese dragons, to the indignation of Tehebu Lama, an amber robe in polite Tibetan society being sacred to royalty and the dislike with which he was regarded. Cattle were driven away, villages deserted, and no one came to pay respects, or bring presents, except the Kajees, who were ordered to attend, and his elder brother, for whom he had usurped an estate near Gangtok.

On the 13th, he marched us a few miles, and then halted for a day at Serriomsa (Alt. 2,820 feet), at the bottom of a hot valley full of irrigated rice-crops and plantain and orange-groves. Here the Gangtok Kajee waited on us with a handsome present, and informed us privately of his cordial hatred of the "upstart Dewan," and hopes for his

²Mr. Lushington, the gentleman sent to conduct Sikkim affairs during Dr. Campbell's detention: to whom I shall ever feel grateful for his activity in our cause, and his unremitting attention to every little arrangement that could alleviate the discomforts and anxieties of our position.

³The Tibet mules are often as fine as the Spanish; I rode one which had performed a journey from Choombi to Lhasa in fifteen days, with a man and load.

¹The Sikkim people are always at issue with the Bhotanese. Nimbo was a runaway slave of the latter country, who had been received into Sikkim, and retained there until he took up his quarters at Darjeeling.

APPENDIX III—*contd.*

overthrow; a demonstration of which we took no notice.¹ The Dewan's brother (one of the Amlah) also sent a large present but was ashamed to appear. Another letter reached the Dewan here, directed to the Rajah; it was from Lord Dalhousie, who was then at Bombay, and had been sent across the country by special messengers: it demanded our instant release, or his Raj would be forfeited; and declared that if a hair of our heads were touched, his life should be the penalty.

The Rajah was also incessantly urging the Dewan to hasten us onwards as free men to Darjeeling, but the latter took all remonstrances with assumed coolness, exercised his ponies, played at bow and arrow, intruded on us at meal times to be invited to partake, and loitered on the road, changing garments and hats, which he pestered us to buy. Nevertheless, he was evidently becoming daily more nervous and agitated.

From the Rungmi valley we crossed on the 14th southward to that of Runnock, and descended to Dikkeeling, a large village, of Dhurma Bhotecas (Bhotanese), which is much the most populous, industrious, and at the same time turbulent, in Sikkim. It is 4,950 feet above the sea, and occupies many broad cultivated spurs facing the south. This district once belonged to Bhotan, and was ceded to the Sikkim Rajah by the Paro Pilo,² in consideration of some military services, rendered by the former in driving off the Tibetans, who had usurped it for the authorities of Lhasa. Since then the Sikkim and Bhotan people have repeatedly fallen out, and Dikkeeling has become a refuge for runaway Bhotanese, and kidnapping is constantly practised on this frontier.

The Dewan halted us here for three days, for no assigned cause. On the 16th, letters arrived, including a most kind and encouraging one from Mr. Lushington, who had taken charge of Campbell's office at Darjeeling. Immediately after arriving, the messenger was seized with violent vomitings and gripings: we could not help suspecting poison, especially as we were now amongst adherents of the Dewan, and the Bhotanians are notorious for this crime. Only one means suggested itself for proving this, and with Campbell's permission I sent my compliments to the Dewan, with a request for one of his hunting dogs to eat the vomit. It was sent at once, and performed its duty without any ill effects. I must confess to having felt a malicious pleasure in the opportunity thus afforded of showing our jailor how little we trusted him; feeling indignant at the idea that he should suppose he was making any way in our good opinion by his familiarities, which we were not in circumstances to resist.

The crafty fellow, however, outwitted me by inviting us to dine with him the same day, and putting our stomachs and noses to a severe test. Our dinner was served in Chinese fashion, but most of the luxuries, such as *beche-de-mer*, were very old and bad. We ate, sometimes with chop-sticks and at others with Tibetan spoons, knives, and two-pronged forks. After the usual amount of messes served in oil and salt water sweets were brought and a strong spirit. Thoba-sing our filthy, cross-eyed spy, was waiter, and brought in every little dish with both hands, and raised it to his greasy forehead, making a sort of half bow previous to depositing it before us. Sometimes he undertook to praise its contents, always adding, that in Tibet none but very great men indeed partook of such sumptuous fare. Thus he tried to please both us and the Dewan, who conducted himself with pompous hospitality showing off what he considered his elegant manners and

graces. Our blood boiled within us at being so patronised by the squinting ruffian, whose insolence and ill-will sorely aggravated the discomforts of our imprisonment.

Not content with giving us what he considered a magnificent dinner (and it had cost him some trouble), the Dewan produced a little bag from a double-locked escritoire and took out three dinner-pills, which he had received as a great favour from the Rimbochy Lama, and which were a sovereign remedy for indigestion and all other ailments: he handed one to each of us, reserving the third for himself. Campbell refused his; but there appeared no help for me, after my groundless suspicion of poison, and so I swallowed the pill with the best grace I could. But in truth it was not poison I dreaded in its contents, so much as being compounded of some very questionable materials, such as the Rimbochay Lama blesses and dispenses far and wide. To swallow such is a sanctifying work, according to Boodhist superstition, and I believe there is nothing in the world, save his ponies, to which the Dewan attached a greater value.

To wind up the feast, we had pipes of excellent mild yellow Chinese tobacco called "Tseang," made from *Nicotiana rextica*, which is cultivated in East Tibet, and in West China, according to MM. Huc and Gabet. It resembles in flavour the finest Syrian tobacco, and is most agreeable when the smoke is passed through the nose. The common tobacco of India (*Nicotiana Tabacum*) is much imported into Tibet, where it is called "Tanma" (probably a corruption of the Persian "Toombac"), and is said to fetch the enormous price of 30s per lb. at Lhasa, where it is sixty times its value in India. Rice at Lhasa, when cheap, sells at 2s for 5lb; it is, as I have elsewhere said, all brought up for rations for the Chinese soldiery.

The Bhotanese are more industrious than the Lepchas, and better husbandmen; besides having superior crops of all ordinary grains, they grow cotton, hemp, and flax. The cotton is cleaned here as elsewhere, with a simple gin. The Lepchas use no spinning wheel, but a spindle and distaff; their loom, which is Tibetan, is a very complicated one framed of bamboo; it is worked by hand, without beam, treadle, or shuttle.

On the 18th we were marched, three miles only, to Singdong (Alt. 2,116 feet), and on the following day five miles farther, to Katong Ghat (Alt. 750 feet), on the Teesta river, which we crossed with rafts, and camped on the opposite bank, a few miles above the junction of this river with the Great Rungeet. The water, which is sea-green in colour, had a temperature of 53° 5' at 4 p.m., and 51° 7' the following morning, its current was very powerful. The rocks, since leaving Tumloong, had been generally micaceous, striking north-west and dipping north-east. The climate was hot, and the vegetation on the banks tropical; on the hills around, lemon-bushes ("Kuchuala," Lepcha) were abundant, growing apparently wild.

The Dewan was now getting into a very nervous and depressed state; he was determined to keep up appearances before his followers, but was himself almost servile to us: he caused his men to make a parade of their arms, as if to intimidate us, and in descending narrow gullies we had several times the disagreeable surprise of finding some of his men at a sudden turn, with drawn bows and arrows pointed towards us. Others gesticulated with their long knives, and made fell swoops at soft plantain-stems; but these artifices were all as shallow as they were contemptible, and a smile at such demonstrations was generally answered with another from the actors.

From Katong we ascended the steep east flank of Tendong or Mount Ararat, through forests of Sal and long leaved pine, to Naunten (Alt. 4,483 feet), where we again halted two days. The Dinpu Tinli lived near, and waited on us with a present, which, with all others that had been brought, Campbell received officially, and transferred to the authorities at Darjeeling.

¹Nothing would have been easier than for the Gangtok Rajah, or any other respectable man in Sikkim, to have overthrown the Dewan and his party; but these people are intolerably apathetic, and prefer being tyrannised over to the trouble of shaking off the yoke.

²The temporal sovereign, in contra-distinction to the Dhurma Rajah, or spiritual sovereign of Bhotan.

APPENDIX IV

A Guide to the Lloyd Botanic Garden, Darjeeling

Lloyd Botanic Garden, Darjeeling—its geographical position and history

The Lloyd Botanic Garden is situated in the District of Darjeeling, Bengal. Its position is immediately below the Eden Sanatorium, bounded on the north by Cart Road, Victoria Jhora and Victoria Road, on the South by Jail Road and Hari Ghose's Road, on the east by wirefencing forming the boundary of the Eden Sanatorium and on the west by Victoria Road. It is situated at a distance of 386 miles by rail—a journey of only fifteen hours by train—from Calcutta. The garden is situated at an elevation of about 6,000 ft. between 27°3' N. and 88°18' E. in the East Himalayas. The indigenous plants represent more or less the characteristic flora of the Sikkim Himalayas. The position of the garden in the heart of the Himalayas is unique of its kind in the east. To the east are the mountains of Bhutan rising above 17,000 ft. in Chumango or Dopepdikand. To the west lie the mountains of Nepal—Sandakphu at a height of 11,929 ft. representing the frontier of the British Territory on this side. On the northern horizon at a distance of about 45 miles, the sublime snowy mountain of Kinchinunga rises above the other peaks of everlasting snow. Darjeeling, the summer headquarters of the Government of Bengal, has a most agreeable climate. The average temperature is 70° in hot months and 35° in the cold weather. The mean temperature is 56° and the average rainfall is 120" a year—with occasional snowfalls in winter. The heavy rainfall is unfavourable to successful cultivation of many plants of higher altitude above 9,000 ft.

The need of a branch establishment in the Himalayas of the Royal Botanic Garden, Calcutta, was felt as far back as 1865, when the late Dr. T. Anderson started such a garden as well as the Cinchona nursery at Rungyoon, a spot about six miles distant from Darjeeling. But as this was found unsuitable for the cultivation of Cinchona the place was abandoned after about six years. Rungyoon due to its distance from the station of Darjeeling was subsequently considered to be not a suitable site for a botanic garden. The then Lieutenant Governor of Bengal, Sir Ashley Eden decided to develop a garden near the station of Darjeeling. The difficulty of securing suitable land for such a purpose within municipal limits was solved by the munificence of Mr. William Lloyd—an old and well-known resident of Darjeeling, who with the greatest kindness offered in 1878 to make over to Government a beautiful piece of land within the station in an accessible situation and with an excellent aspect. This land was cleared and laid out under the guidance and direction of the late Sir George King, the then Superintendent of the Royal Botanic Garden, Calcutta, assisted by Mr. A. T. Jeffery, late of the Cinchona plantations, who became Curator of the new garden. It was named in commemoration of the liberality of the donor of the site—the Lloyd Botanic Garden. The progress of the garden was slow but steady in the beginning, and the planting operations were carried on successfully under the fostering care of Mr. Jeffery till 1886 when he died, and was succeeded by the late Mr. Kennedy from the Cinchona plantations. At the suggestion of Sir Ashley Eden the introduction of some of the best varieties of English and Australian potatoes was attempted in 1886 and proved promising but the potatoes were later on found to be very susceptible to disease—hence the experiment was abandoned in 1888. At this time attempts were made by Mr. Kennedy to plant trees in various parts of Darjeeling, as it offered a sorry contrast to its superb surroundings, there being little to be seen within municipal limits, except corrugated iron sheets and scrub jungles. This was a difficult and thankless task due to the ravages of cattle and interference of the people.

In 1898 the municipal vegetable garden which used to be under the supervision of the Curator of the Lloyd Botanic Garden was made over to the Superintendent of the Royal Botanic Garden, Calcutta. In 1899 the boundary line of the Eden Sanatorium was laid out to bring it into conformity with the Lloyd Botanic Garden proper. Steps were also taken during this time to bring together in the garden complete collections of the Eastern Himalayan species. In 1902, a road admitting of rickshaws entering the garden was provided and a public museum was erected. In 1902 Mr. G. H. Cave was appointed Curator, Botanic Garden, and Mr. W. A. Kennedy reverted to the Cinchona Department. The first attempt towards mapping out the garden 100 ft. squares was made in 1910, with a view to cataloguing non-herbaceous plants. This was accomplished to a certain extent by ticketing the plants by Mr. G. H. Cave, on the lines followed by the Superintendent of the Royal Botanic Garden, Col. A. T. Gage in cataloguing the non-herbaceous plants there. Work on seed and plant distribution became important activities. In 1911, the survey of the garden was completed by Mr. Cave and a map made showing the contours. Sketch maps of each 100 ft. x 100 ft. square on which the position of each specimen was marked for future reference of the officers were prepared but not published. It is retained for the use of the officers in charge of the garden. The activities of this garden, from 1910 onwards reached a high standard and the collection and distribution of seeds, plants and bulbs came to be a special feature of the work undertaken by its officers. The results of so many years' planting prove that among the exotics, species from China and Japan are most adaptable, those from the Antipodes coming next. Mr. Cave, besides his purely horticultural and distribution work, has made several investigations of economic importance on behalf of departments, institutions and individuals, and has supplied information on such questions as the growth, propagation and pests of Citrus, the occurrence of locally grown Coniferous timber suitable for the manufacture of pencils and matches, the use of *Hedychium coronarium* as a source of paper. Apart from these activities the Curator in 1915 gave much of his time to supervision of the grounds of Government House, the municipal re-afforested areas, the three cantonments and the work of the Darjeeling Improvement Fund Committee.

In 1920 the record at the gate—of 60,000 visitors—show the popularity that the garden attained, as an institution where recreational and educational pursuits can be combined. Mr. Cave, an officer of exceptional ability, to whose credit is attributed the development of the garden to its present high standard, retired in 1925, and was succeeded by Mr. J. E. Leslie. Under Mr. Leslie's care the garden maintained its high standard of excellence and efforts were made to carry on in skeleton form the valuable collection branch which formed a special feature of Mr. Cave's work. In 1930, while Mr. S. N. Basu was officiating in Mr. Leslie's place, he had the opportunity of collecting seeds and plants from Bhutan for His Majesty's Royal Park at the instance of Sir Stanley Jackson, the Governor of Bengal. The success of the collection was largely due to co-operation given by Raja S. T. Dorji, the British Agent in Bhutan. Some of the plants collected were grown in baskets for their despatch to England. 115 packets of seeds collected, chiefly from Bhutan and in the Alpine Himalayas of Sikkim had been placed in the hands of the Private Secretary to His Excellency the Governor for His Majesty's Royal Park. In the following year six Wardian cases of Alpine plants were sent to London for His Majesty's Royal Park. In this year (1930), Mr. Basu became the permanent Curator of Lloyd Botanic Garden.

APPENDIX IV—contd.

The area of the garden is forty acres. This area is roughly divided into three main sections: (1) the upper indigenous section, (2) the lower exotic section, representing many species from the temperate parts of the world, a certain number of which have found their access to different suitable parts of the provinces in this country since their introduction to this garden, (3) the miscellaneous section with predominating species of the plants of the Eastern Himalayas and some of the species of hill plants of the North Western India, Eastern India and Burma and of the Nilgiris in Southern India.

Somewhere about the centre in the Rock Garden, named Sir John Anderson Rock Garden after the Governor of Bengal in 1936, are grown in favourable seasons the following Alpine and other dwarf Himalayan species of rare beauty:—*Acaena inermis* Hk. f., *Agapetes saligna* Bth. & Hk. f., *Ajuga lobata* D. Don, *Allium Victorialis* Linn., *Anaphalis triplinervis* Sims ex Clarke, *Anchusa mysotidiflora* Lehm., *Ardisia macrocarpa* Wall., *Arenaria loricifolia* Linn., *Asphodelus luteus* Linn.=*Asphodeline lutea* Reich., *Aster tricephalus* C. B. Clarke., *Astilbe Davidii* Henry., *Azalea* sp., *Berberis* sp., *Boeninghausenia albiflora* Reichb., *Brodiaea grandiflora* Sm., *Campanula pyramidalis* Linn., *Cathcartia villosa* Hook. f., *Chelone barbata* Cav., *Pentstemon barbatus* Roth., *Cineraria maritima* Linn., *Senecio Cineraria* DC., *Cotoneaster microphylla* Wall., *Cotoneaster Simonsii* Hort. ex Baker., *Craetagus* sp., *Daphne cannabina* Wall., *Desmodium sambucus* DC. D. floribundus G. Don., *Deutzia gracilis* Sieb., *Euonymus* sp., *Fragaria vesca* Linn., *Funkia coerules* Sweet -F. ovata Spreng., *Genista Andreana* A. Puiss.=*Cytisus scoparius* Linn., *Gentiana quadrifaria* Bl., *Helianthemum Chamaecistus* Mill. var. *mutabile* Grosser., *Heuchera sanguinea* Engelm., *Hypericum cernuum* Roxb., *Hypericum Hookerianum* Wt. & Arn., *Impatiens sprifer* Hk. f. & Thomson, *Iris Clarkei* Baker, *Iris ensata* Thunb., *Juniperus recurva* Buch-Ham., *Lilium giganteum* Wall., *L. cordatum* Thunb., *Lilium nepalense* D. Don., *L. Wallichianum* Schul. f., *Lonicera parviflora* Edgew., *Meconopsis cambrica* Vig., *Meconopsis nepalensis* DC., *Meconopsis paniculata* Prain, *Meconopsis Wallichii* Hook., *Microglossa albens* C. B. Clarke., *Nepeta nervosa* Royle, *Onosma Emodi* Wall., *Osbeckia* sp., *Pentapterygium Hookeri* C. B. Clarke., *Philadelphus coronarius* Linn., *Polygonum* sp., *Potentilla fruticosa* Linn., *Potentilla fulgens* Wall., *Potentilla Griffithii* Hk. f., *Potentilla Kleiniana* Wight & Arn., *Potentilla Mooniana* Wight, *Primula capitata* Hook., *P. denticulata* Sm., *Primula elongata* Watt, *Primula floribunda* Wall., *Primula petiolaris* Wall., *Primula petiolaris* var. *pulverulenta* Hk.f., *Primula reticulata* Wall., *Primula rotundifolia* Wall., *Primula sikkimensis* Hook., *Pyrethrum hybridum* Wender.=*Chrysanthemum macrophyllum* Walldst., *Ranunculus diffus* DC., *Rehmannia angulata* Hemsl., *Reinwardtia tetragyna* Planch., *Reinwardtia trigyna* Planch., *Rhododendron Edgeworthii* Hook. f., *Rosa sericea* Lindl., *Sarcococca prunifolia* Lindl., *Saxifraga diversifolia* Wall., *Saxifraga hispidula* D. Don., *Saxifraga purpurascens* Hk.f., *Saxifraga sarmentosa* Linn.f., *Scilla* sp., *Senecio diversifolius* Phil., *Smilax aspera* Linn., *Sophora* sp., *Spiraea alba* Du Roi=S. *salicifolia* Linn., *Spiraea bella* Sims., *Spiraea japonica* Linn., *Spiraea micrantha* Hk.f., *Strobilanthes coloratus* T. Anders., *Swertia multicaulis* D. Don., *Trochilus pumilus* D. Don., *Vaccinium retusum* H.f. ex C. B. Cl., *Vaccinium serratum* Wight, *Veronica* sp., *Vinca* sp.

The permanent stock of a little more than one thousand five hundred plants under cultivation represents the temperate floras of thirteen different countries of the world, arranged in the twenty divisions into which the garden has roughly been divided. Nearly fifty per cent. of the total number are common indigenous plants of the Himalayas from different elevations, exhibited in a small compass. The rest of the plants under cultivation are composed of foreign species of which Japan represents about 14 per cent., North America 7 per cent., Australia 6 per cent.,

China 5 per cent., Malaya 4 per cent., Europe 4 per cent., South America 3 per cent., Tropical Asia 3 per cent., Central America 2 per cent., Burma 1 per cent. and Africa 5 per cent.

THE HERBARIUM

In the spacious wing of the office building is arranged in classified order according to Bentham and Hooker's Genera Plantarum nearly all the common species of the Eastern Himalayas. It is a useful small Herbarium and is indeed a valuable addition to the garden. The total number of sheets stored in the herbarium is approximately 20,000. Such a herbarium is a boon to the plant hunter, who has the opportunity of classifying his collections from the surrounding country by comparison with the sheets in the herbarium and with living specimens cultivated in the field adjoining it. The collections are sufficient to help the botanists to name the local plants without much difficulty on the spot before he comes down to the plains.

ABBREVIATIONS

B. = Bhutanese.	Mts. = Mountains.
E. = East.	N. = Nepalese, North.
F. = Forma.	S. = South.
Isl. = Island.	var. = variety.
L. = Lepcha.	W. = West.

THE DIVISION OF THE GARDEN

The twenty divisions of the garden are:

- I Bamboos, coniferous trees, Buddlein, Calycanthus, Tibouchina and Cupressus Thuja. Groups of indigenous trees and shrubs and Hedge of *Trachycarpus Martiana*.
- II *Magnolia campbellii*, Groups of *Rhododendrons*, Sir John Anderson Rock Garden, Groups of *Araliaceae*, Groups of indigenous trees and shrubs, Groups of *Cryptomeria*.
- III Groups of indigenous trees.
- IV Groups of *Berberis*, Groups of *Daphne*, Groups of indigenous trees and shrubs, Hedge of rambler roses.
- V Tree ferns, *Trachycarpus Martiana*, Hedge of hydrangea, *Tibouchina* and *Camellia* hedge, *Roses*, *Cinnamomum camphora*, *Camellia*, Groups of *Magnolias*, Rockery, Groups of *Costrums*, Groups of *Ligustrums*.
- VI Beds of flowers, *Magnolia*, Groups of conifer, Hedge of *Aucuba Japonica*, *Trachycarpus Martiana*.
- VII and VIII.
- IX Hot houses, Nursery, Mixed trees and shrubs.
- X Mixed trees and shrubs, Flowers, Bed of *Narcissus*, Herbaceous border, Conservatories, Beds of Annuals.
- XI Bamboo hedge.
- XII Conifers.
- XIII Mixed trees and shrubs, Japanese maples, Beds of perennials, Beds of annuals.
- XIV Groups of *Cryptomeria*, Canna beds.
- XV Beds of annuals, Tank for water plants, Groups of *Rhododendrons*.
- XVI Beds of perennials, Beds of *Veronica*, Groups of *Quercus*, *Beachornia bracteata*, *Spiraeas* and hydrangeas.
- XVII Line of roses, Japanese maples.
- XVIII *Callitris*, *Roses*, *Cherries*, *Thuja*, *Rose bower*.
- XIX Beds of Annuals. *Cherries*.
- XX Canna beds, Groups of *trachycarpus*, Flower beds, *Cryptomerias*, Species of *rosaceae*, Economic garden.

APPENDIX IV--contd.

ALPHABETICAL LIST OF THE PLANTS CULTIVATED IN THE LLOYD BOTANIC GARDEN, DARJEELING*

BY G. H. CAVE and J. E. LESLIE

Edited and published by K. Biswas

Pinaceae (Coniferae)

- Abies amabilis** Forbes.
America. Red Silver Fir.
- Abies balsamea** Mill.
North America.
Balm of Gilead or Balsam Fir.
Ornamental. Grows well and produces seed. Introduced in 1901.
- Abies Cephalotes cephalonica** Loudon
Greece.
Grecian Fir.
- Abies pectinata** DC.
Mountains of Southern and Central Europe.
Silver Fir, introduced in 1904.
- Abies Nordmanniana** Spach.
Crimea. Caucasian Fir.
Ornamental. Grows well and produces seed.
- Abies Webblana** Lindl.
Webb's Himalayan Fir.
Temperate and subalpine Himalaya 7,000 to 12,000 ft., in the West Afghanistan and 9,000 to 13,000 ft., in the East up to Assam (Naga Hills) & N. Burma.
N. "Gobria Salah", L. "Dumkung", B. "Dumshing".
At the elevation of Darjeeling it does not make a good specimen unless on the clay and in a cool position, in such situations it cones freely. The wood splits easily.

Malvaceae

- Abutilon striatum** Dicks.
Brazil.

Leguminosae

- Acacia Baileyana** F. Muell.
New South Wales and Queensland.
A very pretty free flowering species, suitable also for pot culture. Ripens seed in Darjeeling.
- Acacia capensis** Colla.
South Africa.
- Acacia cultriformis** A. Cunn.
New South Wales.
A distinct species. Flowers freely.
- Acacia heterophylla** Willd.
Isle of Bourbon.

Acacia Intsia Willd.

- Himalaya up to 3,000 ft., in the West and 5,000 ft., in Sikkim, Bihar, Western Peninsula, Burma, Malay Isles.
A large prickly climber.
- Acacia longifolia** Willd.
Australia.
Flowers in quite a young stage. Very liable to be broken by rough wind in March.
- Acacia melanoxylon** R. Br.
Australia.
Black Wattle.
It flowers in quite a young state.
- Acacia penninervis** Sieber.
New Holland.
- Acacia recurva** Benth.
Brazil.
- Acacia saligna** Wendl.
New Holland.
Flowering in quite a young stage and during a great part of the year.

Acanthaceae

- Acanthus ilicifolius** Linn.
Tropical Asia, Australia.

Aceraceae

- Acer acuminatum** Wall. ex Don.
E. Himalaya.
- Acer atropurpureum** Hort.
Japan.
- Acer atropurpureum** var. *dissectum* Hort.
- Acer aureum** Hort.
Japan.
A horticultural variety.
- Acer Campbellii** Hk. F. & T.
Sikkim Himalaya, 7,000 to 10,000 ft.
The general name given to Maples by the Nepalese is "Kapashi", in allusion to the shape of the leaf of this and some other species.
L. "Yeli-kung."
This species is perhaps the commonest tree in the neighbourhood of Darjeeling and scatters its seed so profusely that it is found springing up everywhere. The foliage turns yellow in the autumn. It makes a tree with a straight well shaped trunk and a rounded spreading head. The timber is yellow in colour and very useful for planking and other household purposes.
- Acer caudatum** W. & A.
Temperate Himalaya, Chumbi to Sikkim, 7,000 to 11,000 ft.

*"The list will prove useful towards naming many of the plants of the locality on the spot if consulted with reference to the dried specimens in the Herbarium of the Lloyd Botanic Garden. There may appear in the list plants which the Garden may no longer represent in its collections and there may be plants present in it though not in the list." Dr. K. Biswas's note, dated 26th April 1939.

APPENDIX IV—contd.

***Acer dissectum* Thunb.**

The Bright red fruits of this species are very pretty.

***Acer Hookeri* Miq.**

Eastern temperate Himalaya, Sikkim, 8,000 to 10,000 ft.

N. "Lal" or "Gol Kapashi."

Its crimson leaves in the Autumn and bronzy copper when it recommences growth in the Spring are a great feature in the coloration of the forests. Young plants are often found growing in clefts and ledges of rocks and trees.

***Acer japonicum* Thunb.**

Japan.

There are numerous varieties of this species.

***Acer japonicum* var. *filicifolia*.**

Japan.

***Acer japonicum* var. *Osaku-luki*.**

Japan.

***Acer japonicum* var. *purpurea*.**

Japan.

***Acer japonicum* var. *rosea-marginata*.**

Japan.

***Acer japonicum* var. *sanguinea*.**

Japan.

***Acer japonicum* var. *versicolor*.**

Japan.

***Acer lævigatum* Wall.**

Temperate Himalaya; Simla to Sikkim, 5,000 to 9,000 ft.; Khasia Hills 5,000 ft.

N. "Phirphuri Kapashi" or "Lali Kapashi".

A tree common in the vicinity of Darjeeling. The leaves take on a red coloration in late winter.

***Acer Negundo* Linn.**

North America.

***Acer Osmastonii* Gamble.**

India.

***Acer oblongum* Wall.**

Temperate Himalaya, from Kashmir 2,000 to 3,000 ft., to Sikkim 3,000 to 5,000 ft., Bhutan; Mishmi hills; Hongkong; Loochoo Isles.

A tree not common in the district.

***Acer palmatum* Thunb. var. *reticulatum*.**

Japan.

***Acer pectinatum* Wall.**

E. Himalaya.

***Acer Pseudo-Platanus* Linn.**

Europe.

***Acer saccharinum* Wang.**

North America.

Sugar Maple.

***Acer Sikkimensis* Miq.**

Himalaya.

***Acer spicatum* Linn.**

North America.

***Acer villosum* Wall. var. *Thomsonii*.**

Sikkim Himalaya, 7,000 to 9,000 ft. Bhutan.

Found at 5,000 to 6,000 ft., in the neighbourhood of Darjeeling. It is the tallest of all the local Maples and has large stiff leaves and large fruits.

Dilleniaceæ

***Actinidia callosa* Lindl.**

Temperate Himalaya, Garwahl to Bhutan 4,000 to 5,000 ft.

Khasia Hills, 4,000 to 5,000 ft.; Manchuria; Japan; Loochoo Hills.

N. "Tikiiphal" L. "Taksingrik".

The fruit is eagerly sought for and eaten by the hill people.

***Actinidia strigosa* Hk. f. & T.**

Sikkim Himalaya, 6,000 to 8,000 ft.

Hippocastanaceæ

***Æsculus punduana* Wall.**

Tropical Sikkim Himalaya up to 4,000 ft.; Assam, Burma & Siam.

A noble tree resembling the English Horse Chestnut though the inflorescence is not so large. It flowers according to the altitude at which it is planted, from February in the Tarai to May in Darjeeling. The seed is large and soft and germinates immediately on falling, but seed from trees planted in Darjeeling is harder and may be kept a few weeks.

Ericaceæ

***Agapetes saligna* Hk. f. & T.**

Eastern Himalaya, Sikkim and Bhutan 7,000 ft.; Moulmein (Burma).

A pretty epiphytic shrub.

Alangiaceæ

***Alangium alpinum* Smith & Cave.**

Sikkim, 6,000 to 9,000 ft.

L. "Paletnyok".

***Alangium begoniæfolium* Baill. = *A. Chinense* (Lour.) Rehder et Wilson.**

Throughout North India 1,000 to 6,000 ft.; Punjab to Burma.

N. "Anowruk" L. "Paletkung".

A handsome tree of lower elevations, bearing large angular leaves, and plentiful flowers suspended from the lower sides of the horizontal branches. The wood is used for plough handles as the branches are naturally bent in a way convenient to this purpose.

Leguminosæ

***Albizia Jullibrissin* Durazz.**

Himalaya, Hazara to Sikkim, 6,000 to 7,000 ft., Abyssinia, East Africa; Central Asia, China and Japan.

***Albizia odoratissima* Bth. = *A. Lebbekoides* Bth.**

The foot of the Central Himalaya to Ceylon and Malacca.

N. "Chetu Siris" L. "Anok Sedongkung".

A tall tree with a straight trunk, giving good timber.

APPENDIX IV—*contd.*

***Arundinaria Hindell* Munro.**

Hongkong.

Grows very well in Darjeeling.

***Arundinaria Hindell* Munro. var. *graminea*.**

Japan.

Grows very well in Darjeeling.

***Arundinaria Hookeriana* Munro = *Chimonobambusa Hookeriana* (Munro) Nakai.**

Sikkim and Bhutan 4,000 to 7,000 ft.

One of the most beautiful local bamboos, with its glaucous blue stems and dark green foliage; also the most widely planted in Darjeeling. It flowered last in 1904.

***Arundinaria Japonica* Scib. & Zucc.**

Japan.

Grows very well in Darjeeling.

***Arundinaria Japonica* var. *variegata*.**

Japan.

***Arundinaria Narthra* Mak.**

Japan.

***Arundinaria racemosa* Munro.**

East Nepal and Sikkim 6,000 to 12,000 ft.

***Arundo Donax* Linn.**

Lower Himalaya, Kashmir to Nepal, ascending to 3,500 ft.; Punjab, Sylhet; Naga Hills; Burma; South India; Europe; N. Africa.

Leguminosae

***Astragalus pycnorhizus* Wall.**

Himalaya region. Sikkim 6,000 to 12,000 ft.

***Astragalus stipulatus* D. Don.**

Temperate Eastern Himalaya, Nepal and Sikkim, 6,000 to 10,000 ft.

A striking plant of north Sikkim where it is found at elevations 8,000 to 10,000 ft. The stems die down annually.

Propagated from seed.

Cornaceae

***Aucuba himalaica* Hk. f. & T.**

Sikkim and Bhutan, 6,000 to 9,000 ft. Japan.
Handsome when in fruit, with its scarlet berries.

***Aucuba Japonica* Thunb. var. *variegata*.**

Japan.

A shrub well-known and extensively cultivated. It fruits freely at Darjeeling and plants raised from seed have the same amount of variegation as the parent.

Flacourtiaceae

***Azara microphylla* Hk. f.**

Chile.

Compositae

***Baccharis hallmifolia* Linn.**

Northern United States.

Gramineae

***Bambusa Henonis* Hort.**

Japan.

***Bambusa marmorata* E. A. Mitford.**

China and Japan.

***Bambusa marmorata* E. A. Mitford var. *variegata*.**

***Bambusa Quilloi* A. & C. Rev. = *Phyllostachys Quilloi* A. & C. Rev.**

Japan.

***Bambusa striata* Lodd. ex Lindl.**

Japan.

Grows well and makes a nice edging 2 to 3 ft. high.

Rutaceae

***Barosma betulina* Bartl. & Wendl.**

South Africa, Australia.

Leguminosae

***Bauhinia variegata* Linn.**

Burma, China.

Apocynaceae

***Baumontia grandiflora* Wall.**

Eastern Himalaya, from Nepal to Sikkim up to 4,000 ft. Sylhet, Chittagong.

N. "Gothale phul" L. "Chomrik". A well-known tall climber, with large leaves and white flowers, one of the most showy of the district.

Lauraceae

***Bellischmidia Gammleana* King.**

Eastern Nepal and Sikkim at 6,000 ft.

This tree makes a large massive specimen and yields good timber. N. "Tarsing" L. "Phamlet Kung".

Berberidaceae

***Berberis angulosa* Wall.**

Temperate Himalaya, Nepal to Sikkim, 11,000 to 13,000 ft.

***Berberis aristata* DC.**

Temperate Himalaya 6,000 to 10,000 ft., Nepal to Kanawar Nilgiri Hills and Ceylon 6,000 to 7,000 ft.

Common in Tonglu.

***Berberis concinna* Hk. f.**

Inner valleys of Sikkim Himalaya, 12,000 to 13,000 ft.

***Berberis Darwinii* Hook.**

S. Chile.

***Berberis Fortunei* Ldl.**

China.

***Berberis globosa* Benth.**

N. Granat.

***Berberis Illoifolia* Forst.**

Tierra del Fuego, South America.

***Berberis Insignis* Hk. f. & T.**

Eastern Himalaya, 7,000 to 10,000 ft., Nepal to Bhutan.

A species of very distinct habit.

***Berberis Lycium* Royle.**

Western Himalaya 5,000 to 9,000 ft.; Garwahl to Hazara.

Grows, flowers and fruits freely.

APPENDIX IV—*contd.*

Berberis nepalensis Spreng = **Mahonia nepalensis** DC. ex Dippel.

Temperate Himalaya 4,000 to 8,000 ft., Garwahl to Bhutan, Khasia Hills, Shan States, Burma 4,000 to 5,000 ft.; Nilgiri Hills 4,000 to 8,000 ft.

A very handsome shrub, even apart from its yellow flowers and dark purple berries. Will only thrive in shady situations.

N. "Chutro" L. "Kaerpa-Kung".

Berberis Regelliana Koehne. Japan.

Berberis stenophylla Hance.

China.

Said to be a hybrid between *Berberis empetrifolia* and *Berberis Darwinii*.

Berberis umbellata Wall.

Temperate Himalaya, 9,000 to 11,000 ft., Kumaon to Bhutan.

Berberis vulgaris Linn. (?)

Western Himalaya 8,000 to 12,000 ft. Nepal to Marsi; Western Tibet; Europe and North Asia. The Indian *B. Vulgaris* as described in Flora of British India and Forest Flora by Brandis is not the true *B. Vulgaris* of Europe. The typical *B. Vulgaris* does not occur in India.

Berberis vulgaris var. *brachybotrys* = **B. orthobotrys** Bienert. Sikkim to Simla 6,000 to 12,000 ft.

Berberis Wallichiana DC.

Temperate Himalaya 8,000 to 10,000 ft., Nepal to Bhutan.

Khasia Hills 5,000 to 6,000 ft.

A compact upright shrub. Very handsome.

Berberis Wilsonae Hemsl.

China.

Rhamnaceae

Berberia floribunda Wall.

Tropical Himalaya from the Jhelum to Sikkim, Eastern Bengal and Khasia Hills.

N. "Bangay" L. "Sugru-Kung".

Beschorneria bracteata Mexico.

Jacobi.

Cupuliferae

Betula alba Linn.

Europe.

Betula Caerulea Blanchard.

Ambor.

Betula cylindrostachys Wall.

Temperate and Sub-tropical Himalaya 5,000 to 10,000 ft., from the Sutlej to the Mishmi Hills; Khasia and Martaban Hills 3,000 to 6,000 ft., Manipore.

N. "Sauer" L. "Lungli-Kung".

Betula papyracea Dryand.

North America.

"Paper Birch"; "Canoe Birch".

Betula utilis D. Don.

Temperate Himalaya and Western Tibet from Kashmir, 7,000 to 12,000 ft. to Sikkim 9,000 to 14,000 ft., and Bhutan; Japan; Afghanistan.

Found at elevation 8,000 ft., and above; its foliage, changing to a yellow-russet shade in autumn, adds greatly to the beauty of the forests at that time. Peeling sheet-like bark is known as "Bhurja patra".

N. Bhojapat, L. Hlo-Sangli Kung. B. Takpa.

The type is found at the elevation of Darjeeling.

Euphorbiaceae

Bischofia javanica Bl.

Tropical Himalaya, from Kumaon eastwards, from Assam southwards to Tenasserim, Deccan Peninsula; Western Ghats to Nilgiri Hills, Malay and Pacific Isles.

N. "Kainjal" L. "Sinong Kung".

It yields a dark red, good timber, which is very hard.

Urticaceae

Boehmeria platyphylla D. Don.

Himalaya, from Simla eastward in 7,000 ft., Eastern and Western Peninsulas; Ceylon; Malay Isles; Japan; China; Africa.

N. "Kamali" L. "Laong".

Produces a fibre.

Boenninghausenia albiflora Reichb.

Himalaya—Japan.

Leguminosae

Bossea Yervamora Linn.

Canary Islands.

Rubiaceae

Bouvardia triphylla Salisb.

Mexico.

A small shrub with red flowers.

Araliaceae

Brassalopsis Hainla Seem.

Temperate Himalaya, 3,000 to 6,000 ft., Nepal to Bhutan.

Brassalopsis hispida Seem.

Sikkim 6,000 to 7,000 ft.; Mishmi Hills.

Brassalopsis Hookeri Clarke.

Himalaya, Khasia Hills alt. 4,000.

Brassalopsis speciosa Denc. and Planch.

Nepal and Assam to Chittagong 0 to 5,000 ft.

Moraceae

Broussonetia papyrifera Vent.

Martaban and Ava Hills, Malay, Pacific Isles and Japan Paper-mulberry.

Solanaceae

Browallia Jamesonii Benth.

New Grenada.

To grow this plant to the best advantage a support should be afforded to it over which the plant should be allowed to grow freely, the densely flowered ends of the branches hanging free.

It bears orange-coloured flowers in April and May.

Propagated from cuttings.

Brugmansia suaveolens Bercht. & Presl. = **Datura Suaveolens** Humb. & Bonpl. ex-willd.

APPENDIX IV—*contd.*

Hamamelidaceae

Bucklandia populnea R. Br.

Temperate Himalaya, Nepal to Bhutan 5,000 to 8,000 ft.

Khasia Hills 4,000 to 6,000 ft.; Burma; Java; Sumatra.

This tree with its dark glossy green foliage and stately habit makes a very fine specimen. The wood makes very good charcoal and the timber is good. N. "Pipli" L. "Singliang kung".

Loganiaceae

Buddleia asiatica Lour.

Throughout India ascending to 6,800 ft.; Malaya; Cochin-China and China.

A shrub common in the district. The flowers borne in March are very fragrant. N. "Newarpati" or "Bhimsinpati" L. "Pondam kung".

Buddleia brasiliensis Jacq.

Brazil.

Buddleia Colvillei Hk. f.

Sikkim 9,000 to 12,000 ft.

Bears large crimson flowers in May and seeds freely in the garden.

N. "Lekh Gurupis", L. "Choung kung".

Buddleia Davidii Franch.

China.

Buddleia globosa Hope.

Chile and Peru.

Buddleia Hemsleyana Koehne.

China.

Promises well.

Buddleia intermedia H. B. & K.

Mexico.

Promises well.

Buddleia Lindleyana Fortune.

China.

Quite hardy here. Propagated from cuttings.

Buddleia madagascariensis Lam.

Madagascar.

Hardy but not vigorous at this elevation.

Propagated from cuttings.

Buddleia nivea Duthie.

China.

Promises well.

Buddleia variabilis Hemsl.

China.

Promises well.

Buddleia variabilis Hemsl. var. *magnifica*.

China.

Promises to do well in this locality.

Buddleia variabilis Hemsl. var. *Veitchii*.

Promises to do well in this locality.

Buxaceae

Buxus sempervirens Linn.

Temperate Himalaya, Kumaon to Simla 5,000 to 9,000 ft.

Bhutan 5,000 to 9,000 ft., Punjab; Westward to North Africa and Britain; Northward to Western Siberia, Turkestan, China and Japan. The "Box-tree" flourishes well at Darjeeling.

Propagated by cuttings or layers.

Leguminosae

Cassia sappan Linn.

Eastern and Western Peninsulas; Malaya.

Cassia septaria Roxb.

Tropical Asia.

Calliandra brevipes Benth.

Brazil.

A shrub like an Acacia, very showy when in flower during August. Produces seed and may be propagated from cuttings.

Verbenaceae

Callicarpa japonica Thunb.

Japan.

A rather pretty shrub, grows well, flowers freely and ripens seed. Propagated from seed or cuttings.

Callicarpa rubella Ldl.

Sikkim 2,000 ft.; Khasia and Jaintia Hills 2,000 to 4,000 ft.

China.

A shrub which has proved hardy here. Very pretty when bearing its purple fruits.

Callicarpa vestita Wall.

Nepal, Sikkim 1,000 to 4,000 ft.

This tree has proved hardy here in Darjeeling, though it is not so vigorous as it is at lower elevations. N. "Goehlo" L. "Sunga kung".

Saxifragaceae

Callicoma serratifolia Andr.

New South Wales, Australia.

Attains a height of fifteen ft., and flowers profusely in May. It will bear pruning.

Myrtaceae

Callistemon brachyandrus Lindl.

Australia.

Callistemon Coccineus F. Mull.

A very showy plant bearing its scarlet "bottle-brush" flowers profusely in May and June.

Callistemon lanceolatus Sweet.

Australia.

Callistemon phoeniceus Lindl.

Australia.

Callistemon rigidus R. Br.

Australia.

Callistemon salignus Sweet.

Australia.

Flowers yellow, borne in May and June.

Callistemon speciosus DC.

Western Australia.

A handsome flowering shrub.

APPENDIX IV—contd.

Pinaceæ

Callitris rhomboidea R. Br.

Australia.
Thrives well.

Callitris robusta R. Br.

Australia.

Leguminosæ

Calpurnea aurea Baker.*

Tropical Africa.

Calpurnea lasiogyne E. Mey.

South Africa, Natal Laburnum, Austrl.

Calycanthaceæ

Calycanthus floridus Linn.

North America.

Theaceæ

(Ternstroemiaceæ)

Camellia drupifera Lour. = *Thea drupifera* (Lour.) Pierre.

Eastern Himalaya 3,000 to 7,000 ft., Nepal to Bhutan;
China, Burma, Assam and Khasia Hills 5,000 to
8,000 ft.; Tenasserim and Andaman Islands. N.
"Jungli Cha", L. "Chasing" or "Cha kung". The
wood is hard like that of the tea plant and is used
for tool handles.

Camellia japonica Wall. = *Thea japonica* Baill.

Japan and China.

The cultivated *Camellia* is hardy at this elevation
but the choicer kinds require to be sheltered under
cover of glass or a verandah. They flower in January
and February when the frost and mist often spoil
the flowers. Propagated here by cuttings.

Camellia sasangua Thunb. = *Thea sasangua* Nois ex Cels.

Japan and China.

Camellia Thea Link. = *Thea sinensis* L.

Cultivated Tea. Roughly three varieties are cultivat-
ed in the district "China", "Assam indigenous"
and "Hybrid".

Polemoniaceæ

Cantua buxifolia Lam.

Peruvian Andes.

This shrub is very beautiful with its arching branches
bearing at the tip scarlet flowers.

Propagated from half ripe cuttings, which take some
time to root.

Leguminosæ

Caragana arborescens Lam.

Siberia.

Flowers freely. Spreads itself from seed in this
garden.

Caragana Franchetiana Kom.

China.

Juglandaceæ

Carya alba Nutt.

North America.

Verbenaceæ

Caryopteris Wallichiana Schau.

Subtropical Himalaya 0 to 4,500 ft., Himalaya from
the Punjab to Bhutan.

L. "Maltetrip".

Flacourtiaceæ

Casearia glomerata Roxb.

Sikkim, Bhutan and Khasia Hills 3,000 to 5,000 ft.

L. "Teling kung", N. "burgonli". The wood is used
for building, and for the manufacture of charcoal.

Rutaceæ

Casimiroa edulis La Llave.

Mexico.

St. Michael Orange.

Leguminosæ

Cassia oorymbosa Lam.

New Spain.

Cassia hirsuta Linn.

Tropical America.

Cassia lavigata Willd.

Tropics.

A very free flowering shrub, bearing seed plentifully.
Bears hard pruning.

Cassia marylandica Linn.

United States.

Wild or American Senna.

Fagaceæ

Castanea sativa Mill.

Asia Minor, Europe, Japan and North America.

The "Spanish" or "sweet Chestnut". This species
has been planted in the district.

Cupuliferae

Castanopsis Hystrix A. DC.

Eastern Himalaya, Sikkim, 4,000 to 8,000 ft.; Khasia
Hills 2,000 to 4,000 ft.; Malaya, Perak 4,000 to
5,000 ft.

A large tree plentiful round Darjeeling. In May the
tree is very conspicuous when in flower.

Yields good timber and firewood, also edible fruit.

N. "Katus" L. "Koshw Kung".

Castanopsis indica A. DC.

Tropical Himalaya, from Nepal Eastward, 2,000 to
4,000 ft.

Assam and Khasia Hills and Sylhet 4,000 ft.; Chitta-
gong.

Gives good timber and firewood. The fruit is edible
and of good flavour.

Castanopsis tribuloides A. DC.

Tropical, Subtropical and Temperate Himalaya, Burma
and all the hill ranges of Trans-Gangetic India to
Burma.

Bears a small nut of very pleasant flavour which is
eagerly sought for by the hill people.

N. "Musri Katus"; L. "Kashis-shem". The wood is
used for building purposes.

APPENDIX IV—contd.

Casuarinaceæ

Casuarina equisetifolia Linn.

Malaya Islands Pacific.

Casuarina montana Leschen.

Malaya.

Casuarina suberosa Otto & Dietr.

Australia.

Grows well but slowly.

Bignoniaceæ

Catalpa bignonioides Walt.

North America.

Indian Bean.

Catalpa Kämpferi Sieb. & Zucc.

Japan.

Catalpa speciosa Warder.

North America, United States of America.

Grows and flowers freely.

Meliaceæ

Cedrela Toona Roxb.

Tropical Himalaya from the Indus Eastward, ascending to 3,000 ft.; Hilly district of Central and South India; Malaya; Java; Australia.

The well-known "Toon" yielding the equally well-known timber of that name. A well-developed specimen makes a most handsome tree.

N. "Tooni". L. "Silot kung".

The leaves are used as fodder for cattle.

Pinaceæ

Cedrus Libani Barrel var. *Deodara* = **C. Deodara** Loudon.

North West Himalaya from Kumaon Westward. 3,500 to 12,000 ft.; Afghanistan.

Makes a good specimen if on the clay in an exposed position. Cones at about 20 years of age. "Deodar" yields fragrant oil and durable wood when grown in natural condition. Planted in 1895.

Celastraceæ

Celastrus Championi Benth.

Hongkong.

Celastrus paniculata Willd.

Tropical and Sub-Tropical Himalaya, 1,000 to 4,000 ft. Punjab and throughout the hilly districts of India up to 3,000 ft., Ceylon, Malay Archipelago, Philippine Islands.

A large woody climber.

Celastrus stylosus Wall.

Nepal; Sikkim Himalaya, 5,000 to 6,000 ft.; Khasia; Himalaya 4,000 to 5,000 ft.

A climber with flexible stems and corky bark.

Ulmaceæ

Celtis australis L.

South Europe and Temperate Asia.

Celtis occidentalis L.

Canada and North America.

"Hackberry".

Celtis Wightii Planch.

The Circars; Nilgiri Hills 4,000 to 6,000 ft.; Andaman Isls.; Ceylon; Malay Isls.; Australia.

Taxaceæ

Cephalotaxus drupacea Sieb. and Zucc.

Japan.

Grows well and fruits freely.

Cephalotaxus Griffithii Hk. f.

Assam, Naga Hills, Mishmi and Burma (Ruby Mines).

Leguminosæ

Ceratonia Siliqua Linn.

South Europe, Austria.

The "Locust Tree". In Darjeeling it flowers freely in the spring. It produces suckers at some distance from the stem and may be propagated by means of these.

Solanaceæ

Cestrum aurantiacum Lindl.

America, Guatemala.

Very free growing and quite hardy. Bears in the rains panicles of orange coloured flowers, which are succeeded by white fruits. Propagated from seeds or cuttings.

Cestrum calycinum H. B. and K.

Peru.

Cestrum corymbosum Schlecht.

Brazil.

One of the best of recent introductions to Darjeeling. Its flowers are few but large and in appearance remind one of a Fuchsia. Propagated from cuttings.

Cestrum elegans Schlecht.

Mexico.

A very pretty flowering shrub, almost always in flower. Propagated from seed or cuttings or by division of the plant.

Cestrum fasciculatum Miers.

Mexico.

A shrub somewhat extensively planted in and around Darjeeling. It is seldom out of flower. Propagated from seed or cuttings, or by division of the plants.

Cestrum nocturnum Linn.

America; introduced and naturalised in India.

Not quite hardy in Darjeeling.

Cestrum ovatum Willd ex Roem. & Schult.

Venezuela.

Cestrum Parqui L'Herit.

Chile.

Cestrum Poeppigii Lindl.

Isl. Martinique.

Cestrum Smithii (Hort.) = **C. elegans** Scht. var. *Smithii*.

Mexico.

A species with pretty rose-coloured flowers.

Cestrum salicifolium Jacq.

Venezuela.

APPENDIX IV—*contd.*

Cestrum suberosum Jacq.

Locality doubtful.

Cestrum viridiflorum Hook.

Brazil.

Not quite hardy in Darjeeling. It flowers in winter at the time when frost sometimes kills the higher and outer branches.

Pinaceæ

Chamaecyparis formosensis Matsum.

Formosa.

The genus is much confused with *Thuya* and *Cupressus* as regards nomenclature.

Chamaecyparis Lawsoniana Parl.

North and West America;

North California.

Makes a shapely specimen.

Chamaecyparis pisifera Sieb. & Zucc.

Japan.

Makes a good specimen and grows quickly. It is one of the best ornamental Conifers for planting in Darjeeling.

Palmeæ

Chamaerops humilis Linn.

Southern Europe and North Africa.

Calycanthaceæ

Chimonanthus fragrans Lindl.

Japan.

A shrub flowering in late winter and early spring, all the outer branches being crowded with the yellow flowers which are very fragrant. It produces seed here.

Lauraceæ

Cinnamomum Camphora T. Nees.

Japan.

The "Camphor Tree".

Cinnamomum obtusifolium Nees.

Nepal, Sikkim, Assam, Tennasserim, Andamans.

Rutaceæ

Citrus Aurantium Linn.

Asia.

An Orange of the loose skinned variety and very sweet in flavour. It is cultivated in the district at elevation 1,000 to 4,000 ft. It fruits plentifully, the fruit coming into the market and being largely exported from October to March. The tree is propagated by seed and by "gooties". "Santara" is the local name of this kind of orange.

Citrus medica Linn. var. *medica* proper.

The "Lime" is cultivated in the district but not to any great extent, or as a market crop.

Citrus medica Linn. var. "*Spineless Lime*".

Ranunculaceæ

Clematis Buchananiana DC.

Temperate Himalaya, 5,000 to 10,000 ft.; Mishmi.

Bears pretty cream coloured flowers.

Clematis campaniflora Brot.

Portugal.

Clematis chrysocarpa Welw.

Tropical Africa.

Clematis connata DC.

Temperate Himalaya from Hazara to Sikkim, 4,000 to 10,000 ft.

Clematis Flammula Linn.

Southern Europe.

Clematis Gouriana Roxb.

Western Himalaya 1,000 to 3,000 ft.; Assam, Burma and Eastern Peninsula, Ceylon.

Clematis graveolens Lindl.

West Temperate Himalaya from Marri to Kumaon, 6,000 to 11,000 ft.

Clematis integrifolia Linn.

Eastern Europe, S. Asia.

Clematis Jackmanni Moore "hybrid".

A horticultural variety or series of varieties. This *Clematis* flourishes fairly well in Darjeeling if afforded shelter from heavy rain, as on the side of a building.

Clematis Jackmanni Moore.

Conservatory.

A horticultural variety.

The sepal in the centre of the flower are often produced, thick in texture and green in colour.

Clematis Jackmanni Moore.

Conservatory.

Another horticultural variety with mauve-coloured flowers.

Clematis montana Buch.-Ham. ex DC.

Temperate Himalaya from the Indus to the Brahmaputra, ascending to 12,000 ft.; Khasia Hills above 4,000 ft.

In the wild state this is one of the most showy climbers of the district. It adapts itself to cultivation very readily and flowers very freely. The general name for *Clematis* spp. in Nepalese is "Kanasi lahara" and in Lepcha "Tumbrumchelop".

Clematis Nepaulensis DC.

Temperate Himalaya, from Garhwal to Bhutan.

Clematis orientalis Linn.

Indus to Kumaon, Tibet, W. and N. Asia.

Clematis songorica Bunge.

Siberia, Baluchistan.

Clematis recta Linn.

South and East Europe.

Clematis tangutica Korsh.

Asia.

"Vervenaceæ

Clerodendrum infortunatum Gærtn.

Throughout India from Garhwal and Assam to Ceylon and Singapore; Malaya.

L. "Kambaldum".

APPENDIX IV—*contd.*

Clerodendrum squamatum Vahl.

Sikkim, Bhutan, Assam, Khasia Hills and Sylhet.
Has been cut down by frost; otherwise hardy here.

Polemoniaceæ

Cobaea scandens Cav.

Mexico.

A rampant climber with smooth tough flexible stems.
It flowers profusely. Propagated from cuttings or seed. It is quite hardy here.

Rubiaceæ

Coprosma grandifolia Hook. f.

New Zealand.

Coprosma lucida Forst.

New Zealand.

Boraginaceæ

Cordia serratifolia H. B. & K.

Mexico.

Liliaceæ

Cordyline australis Hk. f.

New Zealand.

Cordyline indivisa Steud.

New Zealand.

A freely growing plant, flowers and seeds in the Garden.

Cordyline indivisa Steud. var. *latifolia*.

New Zealand.

Cordyline javanica Klotzsch.

Tropical Asia; Australia.

Coriariaceæ

Coriaria nepalensis Wall.

Temperate and Sub-tropical Himalaya from Marri 3,000 to 6,000 ft. to Bhutan, ascending to 11,000 ft. in Sikkim; Yunnan.

Coriaria terminalis Hemsl.

Western China and Himalaya.

Cornaceæ

Cornus alba L.

North Asia.

Cornus amomum Mill.

North America.

Cornus capitata Wall.

From Kulu and Kumaon to Bhutan.

A handsome flowering tree.

Cornus florida L. var. *flore-rubro*.

Eastern North America.

"Flowering Dogwood".

Cornus kousa Buerger.

Japan.

Cornus officinalis Sieb. & Zucc.

Japan.

Cornus stolonifera Michx.

North America.

Cupuliferæ

Corylus Avellana Linn.

Europe; North Africa and Temperate Asia.

The "Hazel" or "Filbert". It has fruited once or twice in the gardens, Asia Minor.

Corylus ferox Wall.

Central and Eastern Himalaya, Nepal to Sikkim 8,000 to 10,000 ft.

The fruit is hard shelled but the nut is palatable.

Rosaceæ

Cotoneaster acuminata Ldl.

Temperate Himalaya, Sirmoor to Kumaon 4,500 to 12,000 ft. to Sikkim 7,000 to 13,000 ft.

Cotoneaster bacillaris Wall.

Temperate Himalaya, Waziristan 4,000 to 10,000 ft.

Salt Range, 1,500 ft. to 2,500 ft.

Cotoneaster buxifolia Wall.

Western Peninsula, Nilgiri and Pulney Hills, Temperate Himalaya, Sirmore to Bhutan.

Cotoneaster divaricata Rehd. & Wilson.

Central and Western China.

Cotoneaster Franchetii Boiss.

China.

Cotoneaster frigida Wall.

Central and Eastern Himalaya; Nepal; Interior of Sikkim, 7,000 to 9,000 ft.

This species makes a spreading tree of low stature. It looks handsome in autumn, when the pendant outer branches are loaded with crimson berries.

Cotoneaster humifusa Duthie.

China.

Cotoneaster hebeophylla Diels.

Yunnan China.

Cotoneaster microphylla Wall.

Temperate Himalaya, at 8,000 ft. Kashmir to Bhutan. A dwarf shrub well-known in English gardens.

Cotoneaster pannosa Franch.

Yunnan China.

Cotoneaster reflexa Carr.

China.

Cotoneaster rotundifolia Wall.

Central and Eastern Himalaya, 9,000 to 11,000 ft., Nepal to Bhutan.

Cotoneaster Simonsii Hort.

Khasia Hills.

Cotoneaster thymifolia Hort.

Temperate and Alpine Himalaya, Kashmir to Sikkim.

Cratægus arkansana Sargent.

America.

Cratægus Cambyi Sargent.

South Eastern United States.

Cratægus Cordata Soland.

America.

APPENDIX IV—*contd.*

***Cratægus crenulata* Roxb.**

Temperate Himalaya, from Sirmore to Bhutan (exclusive of Sikkim) 2,000 to 8,000 ft.

***Cratægus Crus-galli* Linn.—**

North America.

***Cratægus cuneata* Sieb & Zucc.**

Japan.

Flourishes well. Flowers and ripens fruit in quite a small stage.

***Cratægus Douglasii* Lindl.**

North West America.

***Cratægus glandulosa* Mitch.**

United States of America.

***Cratægus Oxyacantha* Linn.**

Europe, Western Temperate Himalaya 6,000 to 9,000 ft.

The well-known Hawthorn. Flowers and ripens fruit but is not very vigorous.

***Cratægus Pyracantha* Medic.**

South Europe.

Euphorbiaceæ

***Croton caudatus* Geisch.**

Eastern Himalaya, Sikkim and Bhutan; Assam, Bengal and Sylhet, to the Deccan and Malacca; Ceylon, Java and Philippines.

N. "Halloray", L. "Talikor-rik".

Pinaceæ

***Cryptomeria japonica* D. Don.**

Japan. Japanese Cedar.

Introduced to the Darjeeling district about 1860, and since then extensively planted between elevations 3,000 ft. and 8,000 ft. At the lower elevations the tree is of sparser, more open growth, thus giving to it a character different to the dense dark massive appearance it presents at 6,000 ft. elevations. It seeds very freely from the age of about 15 years, and the seeds germinate where they fall if conditions are favourable. The timber though light, short grained and brittle is useful in situations not exposed to damp.

***Cryptomeria japonica* D. Don. var. *viridissima*.**

Japan.

***Cupressus Benthami* Endl. = *C. lusitanica* Miller var. *Benthami*.**

Mexico and Guatemala. Mexican Cypress.

***Cupressus funebris* Endl.**

China. Chinese Weeping Cypress.

Grows well though slowly. Introduced in 1901.

***Cupressus Goveniana* Gord.**

California.

Grows well. Introduced in 1906.

***Cupressus Lawsoniana* Murr.**

North-West California.

"Lawson's Cypress" thrives well. Introduced in 1901.

***Cupressus Lindleyi* Klotzsch.**

Mexico.

Grows well. Introduced in 1904.

***Cupressus macrocarpa* Hartw.**

Monterey Cypress.

South California. Introduced in 1904.

***Cupressus obtusa* Koch. var. *aurea*.**

Henoki. Southern and Central Japan. Introduced in 1901.

***Cupressus pisifera* Koch.**

Sawara Cypress.

Japan.

Flourishes well, and makes a handsome specimen. Introduced in 1901.

***Cupressus pisifera* var. *aurea*.**

***Cupressus sempervirens* Linn.**

Mediterranean Cypress.

North Persia to South Europe (Mediterranean). Introduced in 1904.

***Cupressus sempervirens* Linn. var. *stricta*.**

Introduced in 1902.

***Cupressus torulosa* Don.**

Western Himalaya, Nepal to Chamba 4,500 to 9,000 ft.; W. Szechuen, China.

Grows fairly well, but loses its lower branches. Cones freely. It has been planted about the town and district and there are some large trees in existence. Introduced in 1901.

Rosaceæ

***Cydonia japonica* Thunb.**

China and Japan.

"Japanese Quince".

Asclepiadaceæ

***Cynanchum Vincetoxicum* Pers.**

Temperate Himalaya, Kashmir to Sikkim 7,000 to 11,000 ft.; Westward to Norway and Spain.

Solanaceæ

***Cyphomandra betacea* Sendt.**

South Brazil.

This is the species which produces the fruit locally named "Tree-Tomato". It has been cultivated of late years in the neighbourhood at elevations 3,000 to 5,000 ft. for the Darjeeling market. Plants noticeable on account of their large leaves and strings of purple egg shaped fruits, may be seen along the Railway line

Leguminosæ

***Cytisus albus* Link.**

Spain and Portugal.

The "white flowered Broom" grows and flowers well in Darjeeling. Propagated by seeds or cuttings.

***Cytisus Ardoini* Fourn.**

Maritime Alps.

APPENDIX IV—*contd.*

Cytisus scoparius Link.

Europe.

The "Broom" has been extensively planted on the hill-sides about the town. It flowers well and ripens seed but is not long-lived. The seedlings require very careful handling if transplanted.

Thymellaceae

Daphne cannabina Wall.=**D. papyracea** Wall. ex Steud.

Temperate Himalaya from Chamba to Bhutan, 5,000 to 7,000 ft. in the West, 6,000 to 10,000 ft. in the East; Khasia Hills, 3,000 to 6,000 ft.

A very pretty shrub, flowering in the winter, flowers white and very fragrant. Plants of the higher elevations flower when leafless. The bark which is tough and fibrous, is manufactured into a yellow-coloured paper. L. "Dhenok", N. "Argaili" or "Kagati". B. "Daysping".

Daphne odora Thunb.

China, Japan.

Daphne odora var. *variegata*.

Daphne Surell W. W. Smith & Cave.

Darjeeling district at 5,000 ft. elevation.

Euphorbiaceae

Daphniphyllum himalayense Muell.

Himalaya.

Solanaceae

Datura arborea Linn.

Peru.

It is rather too cold in Darjeeling for this species, but good specimens may be seen now and then at lower elevations.

Datura cornucopia (Hort.) = **D. fastuosa** Linn.

Horticultural origin. Double and tripple flowered variety of *D. fastuosa*.

Datura suaveolens Humb. & Bonpl.

Mexico.

Urticaceae

Debregeasia velutina Gaud.

Sub-Tropical Himalaya, Kumaon to Sikkim, 2,000 to 6,000 ft.; Assam and Khasia Hills; Deccan Peninsula; Ceylon, Java. Is a handsome shrub when in fruit. N. "Tusharay", L. "Kamhyem kung". The fibre is useful.

Berberidaceae

Decalenea insignis H. f. & T.

Eastern Himalaya, 6,000 to 10,000 ft.; Bhutan and Sikkim.

This plant is extremely local in the neighbouring forests of Sikkim. The fruit called "Bhera singh" by the Nepalese and "Lukchurhauzho" by the Lepchas on account of their resemblance in shape to Sheep's horns, are eagerly sought after by the natives, who greatly relish the sweet pulp in which the seeds are embedded.

Gramineae

Dendrocalamus Hamiltonii Nees & Arn.

Tropical Himalaya from Garhwal to Sikkim; Assam, Khasia Hills and Sylhet.

"Tama Bans" used for many domestic purposes.

Dendrocalamus patellaris Gamble.

Sikkim Himalaya, 4,000 ft. Naga Hills.

N. "Nibha". L. "Pagjiok".

Leguminosae

Desmodium floribundum (D. Don) DC.

Himalaya.

Desmodium oxyphyllum DC.

Central and Eastern Himalaya, tropical and temperate zones, Kumaon and Simla to Assam and Khasia, up to 7,000 ft.

Desmodium polycarpum DC.

Himalayas up to 5,000 ft.; everywhere in the Plains to Burma and Ceylon, Zanzibar, Malay Isles, Phillipines, China, Japan and Polynesia.

Desmodium sambusense DC.

Himalaya temperate and tropical zones from the Upper Punjab to Khasia ascending to 7,000 ft.

Desmodium Scalpe DC.

Hills of the Western Peninsula and Ceylon; Malay and Mascarine Isles; Abyssinia and Natal.

Desmodium sessilifolium Torr. & Gray.

America.

Desmodium tillofolium G. Don.

Himalaya from Upper Punjab to Tavoy, temperate and sub-tropical zones, ascending to 9,000 ft.

A shrub or small tree common round Darjeeling. Flowers in quite a young stage or on young growths when cut hard back.

Saxifragaceae

Deutzia corymbosa Br.

Temperate Himalaya, Kashmir to Bhutan, 6,000 to 10,000 ft.; China, Manchuria, Amurland.

A handsome flowering shrub, commonly cultivated in the neighbourhood and used for hedges. Propagated by cuttings. Old plants should be severely pruned occasionally.

Deutzia gracilis Sieb.

Japan.

A very pretty dwarf flowering shrub. The numerous white flowers are borne in racemes all along the branches in May. Propagated by cuttings.

Deutzia scabra Thunb.

Japan.

Malvaceae

Dicellostyles jujubifolia Bth. and Hk. f.

Eastern Tropical Himalaya, Sikkim and Bhutan.

Conspicuous because of its large bracteoles, which accompanying the flower, persist with the fruit. The fibre of the bark is not very lasting. L. "Dang saviyok".

Saxifragaceae

Dichroa febrifuga Lour.

Temperate Himalaya, Bhutan to Nepal, 5,000 to 8,000 ft.; Khasia Hills 4,000 to 6,000 ft.; Java; China; Philippines.

A shrub common in the district, the flowers, in colour of 2 shades of blue and the turquoiseblue berries are pretty. Among the natives the leaves and root bark have a reputation as a remedy for fever. N. "Basak". L. "Gyebukanak".

APPENDIX IV—~~contd.~~

Caprifoliaceae

Diervilla racemosa Mast.

China.

This shrub is very suitable for Darjeeling gardens. It flowers very freely in April-May, and bears hard pruning very well. Easily propagated by cuttings or from seed, which it bears plentifully.

Diervilla rosea Mast.

China.

Ebenaceae

Diospyros Kaki Linn.

Khasia Hills; Eastern India; China and Japan.

The "Persimmon" has fruited in the district at 4,000 ft. elevation, but is not usually grown.

Anacardiaceae

Dalmanea vulgaris Ham.

Central and Eastern Himalaya, Nepal to Sikkim, 4,000 to 7,000 ft.; Mishmi Hills.

The bracts on the female inflorescence, white in colour and persistent, make this plant showy in the autumn. The fruiting branches are hawked about Darjeeling in the cold season, being sold as a material for decoration. N. "Sangli".

Rosaceae

Decynia indica Dcne.

Eastern Temperate Himalaya, Sikkim 4,000 to 6,000 ft., Bhutan, 7,500 ft., Khasia Hills, 6,000 ft., Burma, Yunnan.

The "Mehel". The lower branches bear large strong spines, these gradually become more and more branch like as the tree gains stature and are entirely absent at 20 ft. from the ground. The tree makes a tall and rather sparse specimen. It coppices well. The wild form bears fruit not unlike a crab-apple, which falls in late autumn.

Sapindaceae

Dodonaea viscosa Linn.

All warm countries.

Does not grow well in Darjeeling.

Sterculiaceae

Dombeya acutangula Cav.

Mauritius.

Grows but does not flower in Darjeeling.

Dombeya natalensis Sond.

South Africa.

Grows but does not flower.

Amaryllidaceae

Doryanthes Palmeri A. Hill.

N. Himalaya, Australia.

Elmocarpaceae

Echinocarpus dasyarpus Bth. = *Sloanea dasycarpa* (Benth.) Chatterjee, *Comb. nov.*

Eastern Himalaya, Bhutan to Sikkim, 4,000 to 6,000 ft.

One of the tallest trees of the forest, with a peculiar truncated top, and with markedly buttressed trunk. It yields good timber.

N. "Gobria". L. "Bee-it-kung".

Thymellaceae

Edgeworthia Gardneri Meissn.

Central and Eastern Himalaya, Nepal to Bhutan, 5,000 to 7,000 ft.; China; Japan.

A very pretty shrub bearing in the spring numerous heads of sweet scented yellow flowers. N. "Argaili" and "Kagati" in allusion to the fact that string and paper is made from its tough fibrous bark. L. "Deyshing". The white paper sold locally as "Nepali paper" is made from the bark of this plant.

Boraginaceae

Ehretia acuminata R. Br.

Australia.

Ehretia Wallichiana Hk. f. & T.

Sikkim and Bhutan, 2,000 to 7,000 ft.; Khasia Hills. N. "Boeri". L. "Noom kung".

Elmagnaceae

Elmagnus argentea Pursh.

North America.

"Silver Berry".

Elmagnus latifolia Linn.

Subtropical and Temperate Himalaya, Kumaon to Bhutan, 2,000 to 8,000 ft.; Assam; Bengal; Tenasserim; Indian Peninsula; Ceylon, Malaya; Penang; China.

The fruit of this species is sold in the local bazars in April, under the name of "Malindo".

Elmagnus pyriformis Hk. f.

Upper Assam.

Elmagnus umbellata Thunb.

Japan.

Elmocarpaceae

Elmocarpus sikkimensis Mast.

Eastern Himalaya, Sikkim, 5,000 ft.

A large tree. The fruit which resembles olives, is eaten by children. N. "Bhadrasi". L. "Shepkelly kung".

Myrsinaceae

Embellia Gambelii Kurz.

Sikkim, 6,000 to 9,000 ft.

A large climber. The leaves are eaten by the Bhutiyas.

Embellia Nagushia D. Don.

Nepal, Sikkim, 5,000 to 10,000 ft.; Khasia Hills.

A large climber. N. "Pattiamlo".

Juglandaceae

Engelhardtia spicata Bl.

Subtropical Himalaya, from Nepal to Bhutan 6,000 ft.; Assam; Manipore; Khasia Hills; Tenasserim; Java; Cochin-China.

Indigenous in the district up to 5,000 ft. It makes a fine spreading tree, handsome in appearance with its numerous large pendant inflorescences. The trunk yields timber of fair quality. L. "Suviak kung". N. "Mowa".

Ericaceae

Enkianthus himalaicus Hk. f. & T.

Eastern Nepal, Sikkim and Bhutan, 8,000 to 11,000 ft.

APPENDIX IV—*contd.*

Leguminosæ

Entada scandens Bth. = **Entada phaseoloides** (L.) Merr.

Central and Eastern Himalaya, Nepal, up to 4,000 ft. in Sikkim. Western Peninsula, Ceylon, Malacca; throughout the Tropics.

N. "Pangra". L. "Kulhor-rik".

This large climber bears large constricted flattened woody pods, containing large flat seeds which are eaten by the Lepchas, used by the Nepalese for washing the hair and by children as playthings.

Tiliaceæ

Entelea arborescens R. Br.

New Zealand.

Acanthaceæ

Eranthemum indicum Clarke = **Pseuderanthemum indicum**

A. M. & J. M. Cowan.

Sikkim and Bhutan, 1,000 to 5,000 ft.; Assam; Khasia and Jaintia Hills.

L. "Chongkek-dum".

This shrub flowers in Darjeeling but is very stunted compared to specimens at a lower elevation, where fine plants may at times be seen near Nepalese dwellings.

Rosaceæ

Eriobotrya Hookeriana Dene.

Eastern Himalaya, Sikkim, 6,500 to 8,000 ft. to Bhutan 4,000 to 6,500 ft.

This species makes a low shrub-like tree. Its large leaves give it distinction. It flowers and fruits well. The fruit resembles a small Loquat but is not edible.

Eriobotrya petiolata Hk. f.

Eastern Himalaya, Sikkim 5,000 to 9,000 ft. Bhutan.

N. "Maya".

A medium-sized, spreading tree. It flowers in May, and the flowers are strongly and rather unpleasantly scented. The fruit is small, green and hard not edible. It sows itself very freely.

Leguminosæ

Erythrina arborescens Roxb.

Central and Eastern Himalaya, Kumaon to Sikkim and Khasia, ascending to 7,000 ft.

N. "Fullido".

Very showy when in flower and leaf, at the latter part of the rains. Grows freely from branch cuttings and is so used on land-slip and for hedges.

Erythrina Crista-Galli Linn.

Brazil.

Erythrina Indica Lam.

Asia to Australia.

Saxifragaceæ

Escallonia organensis Gardn.

Brazil.

Myrtaceæ

Eucalyptus acmenoides Schau.

Australia.

Eucalyptus Bosistoana F. Muell.

Australia.

Eucalyptus botryoides Sm.

Australia.

Eucalyptus oltridora Hook.

Australia.

Eucalyptus orebra F. Muell.

Australia.

Eucalyptus noifolia F. Muell.

Australia.

Salmon-flowered variety.

Australia.

Pink-flowered variety.

Eucalyptus Globulus Labill.

Australia.

The "Blue Gum" grows well; there are some good specimens in the neighbourhood.

Eucalyptus gomphocephala DC.

Australia.

Eucalyptus longifolia Link.

Australia.

Eucalyptus Macarthurii Deane & Maiden.

Australia.

Eucalyptus maculata Hook.

Australia.

Eucalyptus Maidenii F. Muell.

Australia.

Eucalyptus marginata Sm.

Australia.

Eucalyptus paniculata Sm.

Australia.

Eucalyptus resinifera Sm.

Australia.

Eucalyptus relegiana.

Australia.

Eucalyptus rostrata Schlecht.

Australia.

This species does better than any in Darjeeling, but is often broken by the strong winds in March.

Eucalyptus Smithii R. T. Baker.

Australia.

Eucalyptus Stuartiana F. Muell.

Australia.

Eucalyptus tereticornis Sm.

Australia.

Celastraceæ

Euonymus europæus Linn.

Western Asia; Europe.

A deciduous species.

Euonymus grandiflorus Wall.

Himalaya.

APPENDIX IV—*contd.*

***Euonymus japonicus* Linn.**

Nepal.

A well-known garden plant. This, and its varieties are propagated by cuttings. They should be periodically hard pruned.

***Euonymus japonicus* Linn. var. *aureus*.**

A horticultural variety.

***Euonymus japonicus* Linn. var. *variegatus*.**

A horticultural variety.

***Euonymus radicans* Hort.**

A pretty prostrate shrub with variegated leaves. Propagated by cuttings or layers.

***Euonymus theaeifolius* Wall.**

Central and Eastern Himalaya, Nepal to Sikkim, 5,000 to 8,000 ft. Khasia Hills, 4,000 to 6,000 ft.

A shrub common about Darjeeling, often scandent, with small flowers very profusely borne.

***Euonymus vagans* Wall.**

Temperate Himalaya, Sikkim and Nepal.

Compositae

***Eupatorium cannabinum* Linn.**

Europe.

***Eupatorium micranthum* Less.**

South America.

A compact free flowering shrub, quite hardy in Darjeeling.

***Eupatorium guadalupense* Spreng.**

Isl. Guadalupe.

Euphorbiaceae

***Euphorbia sikkimensis* Boiss.**

Sikkim Himalaya in the inner valleys 8,000 to 10,000 ft., Bhutan.

Theaceae

***Eurya japonica* Thunb.**

Japan.

***Eurya symlocoides* Bl.**

Central and Eastern Himalaya, 5,000 to 7,000 ft., Nepal to Mishmi; Java.

N. "Jhingni".

A small tree very common in the neighbourhood.

Rutaceae

***Evodia fraxinifolia* Hk. f.**

Subtropical Himalaya, Nepal to Sikkim 4,000 to 7,000 ft. Khasia Hills, 3,000 to 5,000 ft.; Java.

N. "Kanokpa". L. "Kano".

A very fast growing tree with soft wood. Seeds are eaten.

Araliaceae

***Fatsia japonica* Dcne. & Planch.**

Japan.

A plant cultivated as a pot plant in Europe under the name of Aralia. It flowers and fruits when quite young.

***Fatsia papyrifera* Benth. & Hook. f.**

Formosa.

Grows vigorously and spreads freely by means of suckers.

Myrtaceae

***Feljoa Sellowiana* Berg.**

Brazil.

Moraceae

***Ficus Carica* L.**

Mediterranean Region.

The Fig tree.

***Ficus Gunia* Ham.**

Sub-Himalayas, Bhutan; Central India, Assam, The Khasia Hills, Chittagong and Burma, up to 4,000 ft. China.

N. "Kanhya"; L. "Tungjukung", The fruit is edible.

***Ficus pomifera* Wall.**

Reg. Himl.; Malaya.

***Ficus Hookeri* Miq.**

Sikkim Himalaya and Khasia Hills, 1,000 to 6,000 ft. N. "Nihara".

This, with its large dark green glossy leaves is one of the handsome trees of the neighbourhood. Its large fruits are borne on the older branches.

***Ficus macrophylla* Desf.**

Queensland and New South Wales.

***Ficus nemoralis* Wall.**

Himalaya, Hazara to Bhutan 1,500 to 6,500 ft.; Khasia Hills and Assam. N. "Dudhila". L. "Nyen-kung" B. "Om-singh". The leaves are used as fodder.

***Ficus repens* Rottl.**

China and Japan.

***Ficus scandens* Roxb.**

Tropical Himalaya, from Kumaon Eastward; Bengal, Bihar, Assam, Burma, Andamans.

A trailing shrub growing on rocks and trees.

Leguminosae

***Flemingia semi-alata* Roxb.**

Central Himalayas, in the tropical region, ascending to 5,000 ft.; Ceylon and Malacca, Malay Isles; China, Philippines.

Oleaceae

***Forsythia suspensa* Vahl.**

China and Japan.

Bears sweet scented flowers in early spring.

***Fraxinus excelsior* Linn.**

Temperate Western Himalaya and Western Tibet, 4,000 to 9,000 ft.; Kashmir. From the Caucasus westward to Britain.

"The Ash".

***Fraxinus floribunda* Wall.**

Temperate and subalpine Himalaya, 5,000 to 11,000 ft., Kashmir to Bhutan; Khasia Hills, 4,000 to 5,000 ft. N. "Lankoori". L. "Paizhu".

A slow growing tree, making clean limbs and branches, which are tough as in the European ash.

Leafless for a long period in winter and spring flowering in April while still leafless.

APPENDIX IV—*contd.*

Fraxinus longicuspis Sieb. & Zucc.
Japan.

Fraxinus Ornus Linn.
South Europe.
The "Manna-Ash".

Fraxinus pistaciifolia Torr.
North America.

Oenotheraceae

Fuchsia arborescens Sims.
Mexico.

A very handsome flowering shrub, the flowers having a lilac-like effect. Easily propagated by seeds or cuttings.

Fuchsia corymbiflora Ruiz. & Pav.
Peru.

A good flowering and hardy shrub.

Fuchsia corymbosa Pritz.
Peru.

Flowers freely in summer and autumn and should be pruned back severely after flowering. Propagated by cuttings or by seeds which it bears freely.

Fuchsia fulgens Moc.
Chile, Mexico.

A very pretty species flowering from May to October.

Fuchsia macrostemma Ruiz & Pav. var. *gracilis*.
Mexico.

This species grows to a height of 12 ft., and should be pruned back occasionally.

Fuchsia splendens Bth.
Mexico.

The treatment of this species is the same as that of *Fuchsia corymbosa*.

Araliaceae

Gamblea ciliata Clarke.
Sikkim, Tonglu 10,000 ft., Jongri.

Guttiferae

Garolnia cornea Linn.
The lower outer hills of Sikkim, Eastern Bengal, from Sylhet to Tenasserim, Penang and Malacca; Malay Archipelago.

Ericaceae

Gaultheria fragrantissima Wall.
Nepal to Bhutan, 6,000 to 8,000 ft.; Khasia Hills, Mts. of British Burma; Southern India and Ceylon; Malaya.
Common on Jalapahar, Senchal, and adjacent areas.

Gaultheria Hookeri Clarke.
Sikkim, 8,000 to 11,000 ft.

Liliaceae

Geitonopileum cymosum A. Cunn.
Australia.

Leguminosae

Genista anglica Linn.
Europe.

Genista virgata Link.
Madeira.

Ginkgoaceae

Ginkgo biloba Linn.
Japan; China, Manchuria, Corea where they are supposed to be wild or might have been introduced by priests in these parts near Buddhists temples more than 1,000 years ago.
The "Maidenhair Tree". Native place unknown.

Leguminosae

Gleditschia macrocarpa Desf.
China.

Gleditschia Texana Sargent.
North America.

Gleditschia triacanthos Linn.
United States.

Euphorbiaceae

Glochidion acuminatum Muell. Arg.
Nepal and Sikkim 5,000 to 7,000 ft., Khasia Hills.
N. "Latikath". Wood dark-red, hard and strong.

Annonaceae

Goniolothalamus sesquipedalis Hk. f. & T.
From Sikkim to Assam, Khasia Hills to Tenasserim.

Theaceae

Gordonia anomala Spreng.
Tropical and Subtropical Asia.

Gordonia excelsa Bl.
Eastern Himalaya 4,000 to 6,000 ft.; Eastern Peninsula; Java.
L. "Chau-kung".

Rhamnaceae

Gouania napalensis Wall.
Nepal and Sikkim.

Proteaceae

Grevillea robusta A. Cunn.
Australia.
"Silky Oak". Makes a very pretty tree when young, when old it is not so handsome. The tree also often gets broken by strong winds in March, and its profuse leaf-shedding makes it rather undesirable in the garden.

Tiliaceae

Grewia multiflora Juss.
Malaya, Australia.

Cornaceae

Griselinia littoralis Raoul.
New Zealand.

Gramineae

Gynerium argenteum Nees.
Pampas Grass.

APPENDIX IV—*contd.*

Proteaceae

Hakea saligna Knight.

Australia.

This species grows well and bears its curious flowers in the stems followed by hard woody pod-like fruits.

Hamamelidaceae

Hamamelis japonica Sieb. & Zucc.

Japan.

Leguminosae

Hardenbergia Comptoniana Benth.

Australia.

Flowers freely, ripens a few seeds.

Propagated also from cuttings.

Araliaceae

Hedera Helix Linn.

Europe, Tropical Asia.

Proteaceae

Hellela erratica Hk. f.

Sikkim Himalaya, 2,000 to 6,000 ft.; Khasia Hills, Marataban; 5,000 to 7,000 ft.

N. "Bhandari". L. "Zheeyong-kung".

Araliaceae

Helwingia himalaica Hk. f. & T.

Eastern Himalaya, Sikkim 7,000 to 9,000 ft., Khasia Hills, 5,000 to 6,500 ft.

A shrub found in the damp forests at about 8,000 ft. (e.g., Senchul) bearing small umbels of flowers on the back of its leaves.

L. "Lubborkung".

Cyatheaceae (Filicales)

Hemitelia Brunonian C. B. Clarke = **Cyathea spinulosa** Wall.

Tall growing species not uncommon in moist situations in forests at altitude 3,000 to 6,000 ft. The common East Himalayan Tree Fern. Another tree fern *Alsophila latebrosa* wall is also grown with *C. Spinulosa*.

Araliaceae

Heptapleurum impressum Clarke = **Schefflera impressa** (Cl.) Harms.

Temperate Himalaya, 6,000 to 11,000 ft., Kumaon to Bhutan.

Heptapleurum venulosum Seem.

Throughout Tropical and Subtropical India from the North West Himalayas to the South Deccan and Singapore; Malaya and Tropical Australia. L. "Kantiong rik".

Heteropanax fragrans Seem.

Fiji.

Malvaceae

Hibiscus syriacus Linn.

Syria.

There are two varieties of this hardy Hibiscus here. One has double purple and the other white double flowers. Flowers in the rains, deciduous in the winter. Easily propagated by cuttings put down in winter or early autumn. The shrub bears hard pruning.

Hibiscus mutabilis Linn.

China.

Elaeagnaceae

Hippophae rhamnoides Linn.

North Western Himalaya, 7,000 to 12,000 ft., from Kumaon westward; Western Tibet, 15,000 ft.; Afghanistan; North and Central Asia; North and Middle Europe.

Hippophae salicifolia D. Don.

Temperate Himalaya, Jammu to Sikkim, 5,000 to 10,000 ft. A shrub found in Northern Sikkim. It flowers and fruits abundantly.

Berberidaceae

Holboellia latifolia Wall.

Himalaya 4,000 to 9,000 ft.; Bhutan 4,000 to 9,000 ft.; Khasia Hills 4,000 ft.; Upper Assam.

A climber. N. "Gouffa", L. "Kavol-rik". The fruits which are of the shape and size of a hen's egg, are eaten. The flowers which are borne very profusely in April-May, are almost white in the damper, more shaded forests, and nearly brown if the plant grows in an exposed position.

Verbenaceae

Holmskioldia sanguinea Retz.

Subtropical Himalaya, 0 to 5,000 ft., from Kumaon to Bhutan; Prome Hills, Burma.

A straggling shrub bearing pretty brick-red or rarely yellowish flowers. Though only found at lower elevations and in the warmer valleys, it has proved hardy in the gardens during a series of years. L. "Sag-viak-fo-takchim" or the "Cup of the rani chera (bird)" in allusion to the shape of the flower. N. "Balsi", "Katlilara" or "Harilara".

Saxifragaceae

Hydrangea Hortensia Siebold.

China.

The varieties of this species are extensively planted in and about the town of Darjeeling and other towns in hilly region. Flowering as they do, in the rainy season, they do much to brighten the place. When old plants become scraggy and the flowers small the plant should be pruned down to the ground. The plant is propagated from cuttings.

Hydrangea Hortensia Siebold. var. *variegata*.

A form of the above with variegated leaves with which the blue flowers show up in pleasing contrast.

Hydrangea paniculata Siebold.

Japan.

A very desirable species. The large panicles of white flowers are borne towards the end of the rainy season and last a long time.

Propagated from cuttings of the ripened wood of the current year.

Hydrangea quercifolia Bartr.

Southern United States.

Hydrangea robusta Hk. f. & T.

Temperate Eastern Himalaya, Sikkim to Bhutan, 5,000 to 8,000 ft.

One of the handsomest flowering shrubs of the forests of this altitude; N. "Kulain".

APPENDIX IV—*contd.*

***Hydrangea scandens* Maxim.**

Japan.

Flowers in July.

***Hydrangea vestita* Wall.**

Temperate Himalaya, Bhutan to Kumaon, 8,000 to 10,000 ft., Khasia Hills, 4,500 to 5,500 ft.

A pretty shrub or small tree. N. "Kulain".

***Hydrangea Xanthoneura* Diels.**

China.

Rubiaceae

***Hymenodictyon flaccidum* Wall.**

Temperate Himalaya, 3,000 to 6,000 ft. Garhwal to Bhutan; Khasia Hills, 4,000 to 5,000 ft.

A deciduous large shrub, with lax pendulous branches, usually epiphytic often found on rocks. The flowers are green.

***Hymenopogon parasiticus* Wall.**

Temperate Himalaya, from Kumaon to Bhutan, 6,000 to 8,000 ft.; Khasia Hills, 4,000 to 6,000 ft.; Pegu 3,000 ft.

An epiphytic small shrub often found on rocks.

Its floral bracts, white at the time of flowering in May, are persistent and can be seen after they are dry and even skeletonised, fluttering with a peculiarly exaggerated motion in the slightest breeze. On account of this peculiarity these dry bracts are regarded with superstitious awe by both Nepalese and Buddhists, and used in their religious ceremonies. N. "Repik"; N. "Kursimla" and "Biri".

Guttiferae

***Hypericum alatum* Retz.**

North America.

***Hypericum androsaemum* L.**

Europe, Tropical Asia.

***Hypericum Arnoldianum* Rebd. Hort.**

***Hypericum Ascyron* L.**

Siberia.

***Hypericum canariense* L.**

Canary Islands.

***Hypericum cernuum* Roxb.**

Western Temperate Himalaya, Kumaon to Srimur, 5,000 to 7,000 ft.

This species seems to survive the heavy rains and produces a few ripe seeds. It flowers freely.

***Hypericum olatifolium* Lam.**

North America.

A compact pretty shrub, flowering in the rains; easily propagated from seed.

***Hypericum Coris* L.**

Levant.

***Hypericum densiflorum* Pursh.**

North America.

***Hypericum floribundum* Dryand.**

Canary Islands.

***Hypericum Hookerianum* W. & A.**

Sikkim Himalaya, 8,000 to 12,000 ft., Mishmi and Khasia Hills, 4,000 to 6,000 ft.; Nilgiris.

A pretty low growing shrub, found at rather higher elevations than Darjeeling.

***Hypericum lobocarpum* Gating.**

South United States.

***Hypericum olympium* Linn.**

Greece As. Or.

***Hypericum patulum* Thunb.**

Temperate Himalaya, 3,000 to 7,000 ft.; Khasia Hills, 5,000 to 6,000 ft., Yunan; Japan; Formosa.

This pretty shrub is very plentiful round Darjeeling, growing in damp walls, rocks, etc., as well as among roadside herbage.

N. "Urilo".

Aquifoliaceae

***Ilex dipyrena* Wall.**

Temperate Himalaya, from Simla 5,000 to 8,000 ft. to Sikkim 7,000 to 9,000 ft.

Found on Sanchal.

***Ilex fragilis* Hk. f.**

Sikkim and Bhutan Himalaya, 7,000 to 10,000 ft.; Khasia Hills, 5,000 ft.

The numerous small berries, turquoise blue in colour, with which the branches are crowded in winter, give this shrub a very pretty appearance.

N. "Sany Jhingni".

***Ilex Hookeri* King.**

Sikkim 10,000 ft.

***Ilex insignis* Hk. f.**

Sikkim Himalaya, 7,000 ft.

N. "Harri"; L. "Tonglong kung".

A tree common round Darjeeling. The lower leaves are very spiny, the upper entire. Bears numerous scarlet berries in winter.

The "Darjeeling Holly".

***Ilex intricata* Hk. f.**

Eastern Nepal Himalaya, and Sikkim 10,000 to 12,000 ft.

A very compact dwarf shrub somewhat resembling the box tree in general appearance. Forms a great proportion of the undergrowth of the Juniper woods of Northern Sikkim.

***Ilex malabarica* Bedd.**

S. India.

***Ilex Wightiana* Wall.**

Western Peninsula; Nilgiri Hills; Ceylon; up to 4,000 ft.

Balsaminaceae

***Impatiens cathcarti* H. F.**

Himalaya.

***Impatiens Jurpa* Ham.**

Himalaya.

APPENDIX IV—*contd.*

Leguminosae

***Indigofera* Desua Ham.**

Temperate Central and Eastern Himalaya, Simla to Bhutan and Assam, 6,000 to 8,000 ft.

A very pretty shrub, flowering in May and June.

Will bear hard pruning.

***Indigofera* Desua Ham. var. *tomentosa*.**

Khasia; Sylhet; Sikkim and Bhutan.

Common on abandoned cultivation and by the road sides in Sikkim. Is grown as a shade tree on one or two Tea gardens at 5,000 ft. Bears hard pruning well. The cylindrical pods are hard shelled and very persistent.

L. "Jeray kung".

Bignoniaceae

***Jacaranda ovalifolia* R. Br.**

Brazil.

A handsome foliage plant; it has not flowered in Darjeeling.

Oleaceae

***Jasminum dispersum* Wall.**

Temperate Himalaya, 2,000 to 8,000 ft., Kashmir to Bhutan; Khasia Hills, 3,000 to 6,500 ft.

A twining shrub common in the district. The pink and white flowers are very sweetscented.

***Jasminum floridum* Bge.**

China.

***Jasminum floribundum* R. Br.**

Abyssinia.

***Jasminum glandulosum* Wall.**

Subtropical Himalaya 2,000 to 6,000 ft., Kumaon to Bhutan; Khasia Mts., 2,000 to 4,000 ft.

***Jasminum humile* Linn.**

Subtropical Himalaya, 2,000 to 5,000 ft.; Kashmir to Nepal; Bhutan; South India and Ceylon.

A shrub very suitable for the garden. Bears for a long period its profuse yellow flowers and seeds freely. Propagated from seeds or cuttings.

***Jasminum officinale* Linn.**

Kashmir 3,000 to 9,000 ft.; Kabul; Persia.

A plant well-known in European garden.

Juglandaceae

***Juglans olivacea* L.**

North America.

***Juglans regia* Linn.**

Temperate Himalaya and Western Tibet, 3,000 to 10,000 ft.; from Kashmir Eastward; Khasia Hills, Baluchistan; Persia; Caucasus; Armenia.

The "Walnut" is not plentiful in the local forests, but yields good timber. The nuts are very hard shelled, but are brought in from the upper valleys of Sikkim, where the tree is more plentiful and the bark is used as a brown dye.

N. "Akrot"; L. "Kowal kung".

***Juglans sinensis* Dobe.**

China.

Pinaceae

***Juniperus pseudo-sabina* Hooker = *J. Wallichiana* Hk. f.**

Temperate Himalaya from Kashmir to Bhutan and Western Tibet 9,000 to 15,000 ft. Wood burned as incense in Buddhist Temples.

Grows well but slowly.

B. "Deshuk".

***Juniperus recurva* Ham.**

Temperate and Alpine Himalaya 7,500 to 15,000 ft.; Afghanistan.

The leaves are used as incense and sold for that purpose in the Darjeeling Bazar.

N. "Barungpati" also "Dhupi"; B. "Shuku".

Oenotheraceae

***Jussieua peruviana* Linn.**

Tropical America.

A pretty flowering shrub. Propagated from seed or cutting.

Magnoliaceae

***Kadsura Roxburghiana* Arn.**

Subtropical forests of Sikkim, Assam, Sylhet and Khasia Hills up to 5,000 ft.

Leguminosae

***Kennedya rubicunda* Vent.**

Australia.

A very pretty flowering climber.

Rosaceae

***Kerria japonica* DC.**

Japan.

Flowers in May. Increased by cuttings, offshoots or divisions in Winter.

***Kerria japonica* DC.**

Japan.

A well-known English garden plant. It flowers freely in May and increases rapidly by its spreading sucker-like stems.

***Kerria japonica* DC. var. *variegata*.**

Japan.

A horticultural variety of the above.

A variegated form; it makes a desirable shrub or pot plant.

Leguminosae

***Laburnum Adami* Hort.**

Said to be a graft hybrid.

Lythraeae

***Lagerstromia Indica* Linn.**

China.

This species does not flower freely. It flowered in August this year but there was no development of fruits so far.

Verbenaceae

***Lantana hybrida*.**

The plants in cultivation in this garden are hybrids. They flower during autumn and rooted cuttings make pretty bedding plants.

It does not produce ripe seed.

APPENDIX IV—*contd.*

Lantana illaena Desf.

Brazil.

Lantana purpurea Benth. & Hook. f.

Mexico; Venezuela.

Lantana velutina Mart. & Gal.

Mexico.

Pinaceæ

Larix europæa DC.

Europe at high altitudes.

The Larch.

Larix Griffithii Hk. f. & T.

Eastern Himalaya, Sikkim and Bhutan, 8,000 to 12,000 ft.

Larix leptolepis Murray.

Japan.

Rubiaceæ

Lasianthus Blermannii King ex Hf

Sikkim Himalaya, 5,000 to 8,000 ft.; Khasia Hills; 4,000 to 6,000 ft.

A shrub forming an element of the undergrowth of the neighbouring forests.

Lauraceæ

Laurus canariensis Webb & Berth.

Canary Islands.

Laurus nobilis Linn.

South Europe.

The "Bay Tree".

Labiateæ

Lavandula abrotanoides Lam.

Canary Islands.

Lavandula vera DC.

Mediterranean region.

Myrtaceæ

Leptospermum canescens Wendl.

Australia.

Leptospermum flavescoens Sm.

Australia.

Leptospermum Nichollsii D. Smith.

New Zealand.

Leptospermum scoparium Forst.

New Zealand.

Flowers profusely in May and June.

Leguminosæ

Lespedeza floribunda Bunge.

China.

Leschenaultia biloba Lindl.

Australia.

Lespedeza juncea Pers.

Kashmir and Kumaon, Temperate region 4,000 to 8,000 ft.; Siberia; Northern China.

Labiateæ

Leucosceptrum canum Sm.

Temperate Himalaya, Kumaon to Bhutan, 2,000 to 8,000 ft.; Khasia Hills, 4,000 to 5,000 ft.

N. "Gurpis" L. "Chung kung".

A small tree common in and round Darjeeling. It bears in February upright spikes of yellow-white flowers, which exude a sweet juice.

The tree grows easily and quickly.

Caprifoliaceæ

Leycesteria Belliana W. W. Smith.

Karponang in Sikkim 9,000 to 10,000 ft.

A small free flowering shrub, hitherto only found in one locality, and named in honour of C. A. Bell, Esqr., I.C.S., the then Political Officer in Sikkim.

Leycesteria formosa Wall.

Temperate Himalaya 5,000 to 10,000 ft., Kumaon to Bhutan; Khasia Hills, 5,000 to 6,000 ft.

A pretty shrub very common in and around Darjeeling.

Leycesteria glaucophylla Hk. f.

Sikkim Himalaya, 6,000 ft.

Acanthaceæ

Libonia floribunda Koch.

Brazil.

A very pretty flowering shrub which does not develop the full beauty of its flowers outside, but is more suitable for pot culture. Propagated from cuttings in spring.

Pinaceæ

Librocedrus chilensis Endl.

Andes of S. Chile. Chilean Cedar.

Librocedrus macrolepis Benth. & Hook. f.

S. Yunnan, China.

Oleaceæ

Ligustrum confusum Dene.

Sikkim, Bhutan, Khasia Hills, 3,000 to 5,000 ft.

A free growing bush or small tree.

Ligustrum Delavayanum Hort.

China.

Ligustrum Ibota Siebold.

Japan.

Ligustrum Ionandrum Diels.

Yunnan.

Ligustrum myrsinites Dene.

India.

Ligustrum nepalensis Wall.

Temperate Himalaya 4,000 to 7,000 ft.; Garhwal to Nepal.

Bears pruning well. Is propagated from cuttings.

Ligustrum Stauntoni DC.

China.

APPENDIX IV—*contd.*

Ligustrum vulgare Linn.

Europe and North Africa.

The well-known "Privet", Flowers and fruits freely, bears pruning or clipping, and makes a good hedge plant. Propagated from seeds or cuttings.

Scrophulariaceæ

Lindenbergia Hookeri Clarke.

Tropical Sikkim Himalaya, foot of the outer hills. 3,000 to 4,000 ft.

Doubtfully hardy in Darjeeling, it is one of the pretties flowering plants of lower elevations.

Verbenaceæ

Lippia oltriodora H. B. & K.

Chile.

"Lemon scented Verbena." It is late in coming into leaf, but flowers freely. It should be kept well pruned back. Propagated from half-ripe cuttings.

Hamamelidaceæ

Liquidambar formosana Hance.

China.

Magnoliaceæ

Liriodendron tulipifera Linn.

North America.

"Tulip-tree." This species flowers and produces fertile seeds in quite a young stage.

Lauraceæ

Litsaea oltrata Blume.

Sikkim to Mishmi 5,000 to 9,000 ft.; Khasia Hills, 5,000 to 6000 ft.

A deciduous bush or small tree with a delightful fragrance of oranges.

Litsaea elongata Wall.

Temperate and Subtropical Himalaya, Garhwal to Bhutan 6,000 to 8,000 ft., Khasia Hills, 5,000 to 6,000 ft.

N. "Paieli".

Litsaea Kingii Hk. f.

Sikkim Himalaya, 6,000 to 8,000 ft.; Khasia Hills, N. "Lekh Siltimbur", L. "Hlo-Tinghæorchok kung". Flowers in early spring when leafless, the abundant yellow flowers being fragrant.

Litsaea polyantha Juss.

From Punjab and the Salt Range above the foot of the Himalayas, up to 3,000 ft. Eastward to Assam and Southward to the Satpura Range. Coromandel, Tenasserim and Penang, Java, China.

Litsaea zeylanica C. & T. nees. = **Neolitsaea zeylanica** (Nees) Merr.

Hilly parts of India; Ceylon; Sumatra; Java.

A handsome tree with shining foliage, but very subject to a disease of the flower spikes resembling "Witches broom".

Caprifoliaceæ

Lonicera acuminata Wall.

Temperate Himalaya, from Nepal to Sikkim, 7,000 to 11,000 ft.

A very vigorous climber, common round Darjeeling and the damper forests adjoining.

Lonicera angustifolia Wall.

Temperate Himalaya, Khasia to Sikkim, 6,000 to 12,000 ft.

Lonicera confusa DC.

Japan; China.

Lonicera decipiens Hk. f. & T.

Nepal to Bhutan, 6,500 to 12,000 ft.

Lonicera flexuosa Thunb. var. *aureo-reticulata*.

Japan.

"Japanese Honey suckle." It flowers sparsely, but its golden variegated foliage is always pleasing. Propagated by cuttings.

Lonicera fragrantissima Lindl.

China.

Lonicera glabrata Wall.

Himalaya.

Lonicera japonica Wall.

Himalaya.

A shrub bearing in February and March, when leafless, numerous light yellow, very fragrant, flowers. It ripens seed in April. Propagated from seed, also from hard wooded or soft wooded cuttings.

Lonicera ligustrina Wall.

Himalaya.

Lonicera Maackii Herb. var. *podocarpa*.

Manchuria.

Lonicera macrantha DC.

Temperate Himalaya from Nepal to Bhutan 6,000 to 10,000 ft.

Khasia Hills, 4,000 to 6,000 ft.

A honeysuckle not uncommon round Darjeeling.

Lonicera orientalis Lamk.

Temperate Himalaya, 7,000 to 11,000 ft., from Kashmir to Kumaon; Western Asia.

Lonicera rupicola Hk. f. & T.

Eastern Tibet and North Sikkim.

Lonicera sullivantii A. Gray.

North America.

The largest of the Honeysuckles, a very rampant grower; bears long yellow flowers and has large fruits.

Lonicera tomentella Hk. f. & T.

Temperate Himalaya, 0 to 12,000 ft.

A small shrub of North Sikkim, and seems fairly well at home in Darjeeling.

Lonicera xerocalyx Diels.

Yunnan, China.

Rubiaceæ

Luoulla gratissima Sweet.

Temperate Himalaya, Nepal to Bhutan, 5,000 to 6,000 ft.; Ava.

N. "Dwari"; L. "Sabrakrik".

A shrub, not plentiful in the district, but well-known in cultivation. It flowers freely in autumn and ripens its seeds the following spring. Propagated from seed or from cuttings of half ripened wood. The shrubs bears pruning well.

APPENDIX IV—contd.

Solanaceæ

Lyolum europæum Linn.

Western India, 0 to 5,000 ft. Mediterranean region.

Lauraceæ

Machilus edulis King.

Sikkim Himalaya, 6,000 ft.

N. "Lepchaphal"; L. "Phum".

A tall tree with straight trunk. The fruit is much relished by the tree bear.

Machilus Gambelii King.

Northern Bengal; Cooch Behar; Assam.

N. "Auli Kawala"; L. "Ruhunkung".

Myrsinaceæ

Maesa Chisia Don.

Nepal to Bhutan, 2,000 to 6,000 ft.; Khasia Hills, 3,000 to 5,000 ft.

N. "Bilauni"; L. "Purmo kung".

A large shrub or small tree common in the neighbourhood as is the following species.

Maesa Indica Wall.

Throughout India, 0 to 6,000 ft.; Malaya; Southern China.

Often bears deformed inflorescences like "Witches broom".

Maesa rugosa Clarks.

Sikkim, 5,000 to 7,000 ft.

Magnoliaceæ

Magnolia Campbellii Hk. f.

Sikkim and Bhutan, 8,000 to 10,000 ft.

N. "Ghogay chanp"; L. "Gok".

Probably the most handsome flowering tree at this altitude. In February-March the hillsides to the South and West of the town are dotted white and pink with the trees of this species in flower. It is also one of the sights of this garden. The colour of the flowers varies in different specimens from pure white to almost crimson. Ripe seeds are produced in September and as soon as the rains cease the tree commences to shed its leaves. Each branch and branchlet is then seen to be terminated by a flower-bud wrapped in shaggy bracts. These buds swell continuously all the winter. New leaves begin to be unfolded in April. The wood of this tree is yellowish in colour and with a smooth satiny surface when planed. It is largely used for Planks.

Magnolia compressa Maxim.

Japan.

Magnolia fuscata Andr. = **Michelia fuscata** Bl.

China.

Magnolia globosa Hk. f. & T.

Inner ranges of the Sikkim Himalaya, 9,000 to 10,000 ft.

Flowers white and sweet scented, very showy.

Magnolia grandiflora Linn.

North America.

A handsome evergreen species, bearing large fragrant white flowers from May till October.

It does not produce seed. Propagated by layers.

Magnolia Hypoleuca Sieb.

Japan.

A sparse growing deciduous species, the white flowers are handsome and fragrant.

Magnolia kobus DC.

Japan.

Magnolia obovata Thunb. var. *discolor*.

Japan.

This is the plant grown under the horticultural name of *Magnolia purpurea*. It is a deciduous species bearing, previous to putting on leaf, numerous flowers which are of a peculiar shade of purple, although a few flowers are borne from time to time subsequently. It produces ripe seed. It can also be propagated by cuttings.

Magnolia parviflora Sieb. & Zucc.

Japan.

Magnolia stellata Maxim.

Japan.

A beautiful small species. The small star-like white flowers appear in early spring, previous to the leaves.

Magnolia stellata Maxim. var. *rosea*.

A rose coloured form of the above.

Euphorbiaceæ

Mallotus nepalensis Muell & Arg.

Central and Eastern Himalaya, Nepal, Sikkim, 5,000 to 7,000 ft.; Khasia Hills, 4,000 to 5,000 ft.

N. "Mallata"; L. "Numbong Kung".

A tree common about Darjeeling.

Apocynaceæ

Mandevilla suaveolens Lindl.

Buenos Ayres.

Melastomaceæ

Medinella rubicunda Bl.

Subtropical Himalaya, from Sikkim Eastward; Khasia Hills, 2,000 to 5,000 ft.; Penang; Sumatra.

A pretty shrub, often epiphytic.

Myrtaceæ

Melaleuca hypericifolia Sm.

Australia.

Melaleuca nesophila F. Muell.

Australia.

Melastomaceæ

Melastoma malabathricum Linn.

Throughout India from sea-level to 6,000 ft.

Melastoma Molkenboerli Miq.

Java.

Meliastomaceæ

Mellanthus comosus Vahl.

Cape of Good Hope.

Mellanthus major Linn.

South Africa.

APPENDIX IV—*contd.*

Rutaceæ

Mellicope ternata Forst.
New Zealand.

Bixaceæ

Meliccytus ramiflorus Forst.
New Zealand.

Sabiaceæ

Meliosma Wallichii Planch.
Tropical Himalaya, Nepal and Sikkim; Khasia Hills,
4,000 to 6,000 ft.; Korea.
N. "Dabdabbi".
A large tree common round Darjeeling and up to
8,000 ft.

Alangiaceæ

Marlea begoniifolia Roxb. = **Alangium begoniifolium** (Roxb.)
Baill.
China, Japan.

Myrtaceæ

Metrosideros robusta A. Cunn.
New Zealand.

Leguminosæ

Mezoneurum cucullatum W. & A.
Eastern Himalayas, from Nepal (up to 4,000 ft.) to
Khasia Hills, Bihar and the Western Peninsula;
Malaya Isles.
N. "Bokshikara"; L. "Veang-kuk-ghu".
The powdered seeds are used as a vermifuge for cattle.

Magnoliaceæ

Michelia Cathcartii Hk. f. = **Alcimandra cathcartii** (Hook.
f. & T.) Dandy.
Sikkim Himalaya, 5,000 to 6,000 ft.
N. "Titay Champ"; L. "Atokdung".
This is a pretty tree, the small white flowers contrast-
ing well with the dark glossy foliage.
It flowers in May and June. The tree makes a
straight trunk of fair girth and yields good timber.

Michelia excelsa Bl.

Temperate Himalaya, 5,000 ft. Nepal to Bhutan, and
the Khasia Hills.
N. "Seto Champ"; L. "Sigugrip"; B. "Gok".

This handsome ever-green tree has dark glossy foliage,
and bears in March clusters of large white fragrant
flowers. It is especially abundant on the North-
East slopes of Senchal and the North slopes of
Ghumpahar and at the time of flowering the forests
there look as though sprinkled with snow. It has
been planted about the town. The wood is equal
to that of the other Magnolias and Michelias, but
the trunk is not so straight and massive.

Michelia Champaca L.

Forests of the Temperate Himalaya, from Nepal
Eastwards and in Pegu, Tenasserim, the Nilgiris
and Travancore, Java.

The well-known "Champak" widely cultivated.

Michelia fuscata Bl.
China.

Michelia lanuginosa Wall.

Temperate Himalaya, 5,000 to 7,000 ft., Nepal to
Bhutan; Khasia Hills.

N. "Phusrey Champ".

A tall tree of sparse growth and an exceptionally long
clean trunk. It flowers in Autumn.

Celastraceæ

Microtropis discolor Wall.

Subtropical Himalaya, Kumaon, Sikkim, 4,000 to
7,000 ft.

Khasia Hills, 1,000 to 7,000 ft.; Tenasserim.

Leguminosæ

Mimosa acanthocarpa DC.

Mexico.

Mimosa acantholoba Poir.

Tropical America.

Compositæ

Montanoa bipinnatifida C. Koch.

Mexico.

Flowers well in late autumn. For horticultural purposes
it succeeds best if cut down to near ground level after
flowering. Easily propagated from stem cuttings.

Montanoa grandiflora Hemsl.

Mexico.

Moraceæ

Morus Indica Linn.

Temperate and Subtropical Himalaya, Kashmir to
Sikkim, 7,000 ft. Bengal; Assam; Burma; China;
Japan.

N. "Sanu Kimbu".

Leguminosæ

Mucuna macrocarpa DC.

Nepal and Sylhet; Khasia and Sikkim 1,000 to 6,000 ft.
N. "Baldengra Lahara"; L. "Taknyeirik".

A very large climber, the thick woody stems hanging
among large trees like immense cables.

The racemes of greenish yellow flowers are produced
from the woody stems, and succeeded by long pods,
which are rather persistent and have large hard
shelled seeds, resembling speckled "broad beans".

Rubiaceæ

Mussaenda macrophylla Wall.

Himalaya; Malaya.

Myristicaceæ

Myristica Kingii Hk. f. = **Horsfieldia Kingii** (H. f.) Warb.

Sikkim Himalaya 1,000 to 4,000 ft.

Rutaceæ

Murraya exotica Linn. = **M. Paniculata** Jack.

Throughout hotter parts of India, Burma and Ceylon.

Myrsinaceæ

Myrsine capitellata Wall.

Nepal, 4,000 ft.; Bhutan; Assam; Khasia Hills; Ava.
Found at lower elevations in this district.

Myrsine semiserrata Wall.

Himalaya, Burma.

APPENDIX IV—*contd.*

Myrtaceæ

***Myrtus communis* L.**

South Europe.

"Myrtle". It flowers in the rainy season.

Propagated from cuttings. The bush should be hard pruned occasionally.

Berberidaceæ

***Nandina domestica* Thumb.**

China and Japan.

This handsome shrub grows well in Darjeeling and is almost always in flower. No ripe fruits are produced. Propagated by division of the clumps.

***Nandina domestica* Thumb var. *sakuinoma*.**

Olacaceæ

***Natsiatum herpetiolum* Ham.**

Nepal, Sikkim, Sylhet and Khasia Hills, 3,000 ft.

Rosaceæ

***Neillia opulæfolia* Bth. & Hk. f.**

North America.

***Neillia sorbifolia* Linn.**

***Neillia thyrsiflora* D. Don.**

Central and Eastern Temperate Himalaya, 5,000 to 8,000 ft.; Khasia Hills, 5,000 to 7,000 ft., Java.

A shrub which occurs frequently as undergrowth in local forests.

Sapindaceæ

***Nephellum lolocarpum* F. Muell.**

Australia.

Apocynaceæ

***Nerium Oleander* L.**

Mediterranean region.

"Oleander" is hardy here but is poor in comparison with the showy plant produced in the plains. Easily propagated from cuttings.

Lythraceæ

***Nesaea salicifolia* H. B. K.**

Tropical America.

Solanaceæ

***Nierembergia gracilis* Hook.**

Buenos Ayres.

A very slender and graceful small shrub and very floriferous. Propagated from cuttings.

Rosaceæ

***Nuttallia oerasiformis* Torr. & Grey.**

North and Central America.

A dwarf flowering shrub.

Nyssaceæ

***Nyssa sessiliflora* Hk. f.**

Sikkim 5,000 to 8,000 ft.; Khasia Hills; Cachar; Martaban; Java.

N. "Lekh Chilauni".

The timber is good and much used in the district.

The tree grows tall and with a straight even trunk.

***Nyssa sylvatica* Marsh.**

North America.

"Tupelo, Pepperidge."

Malvaceæ

***Ochroma Lagopus* Sw.**

Tropical America.

Oleaceæ

***Olea acuminata* Wall.**

India.

***Olea fragrans* Thumb.—*Osmanthus fragrans* Lour.**

Himalaya, China, Japan.

Melastomaceæ

***Osbeckia crinita* Bth.**

Sikkim and Bhutan, 4,000 to 8,500 ft.; Khasia Hills, 3,000 to 6,000 ft., Moulmein.

N. "Chulasi"; L. "Tumbrum".

***Osbeckia nepalensis* Hook.**

Subtropical Himalaya from Nepal Eastward and in the Khasia Hills, 0 to 4,000 ft. Ava.

***Osbeckia rubicunda* Thw.**

Ceylon.

***Osbeckia stellata* Wall.**

Himalayan Tarai from Kumaon to Bhutan, to 5,000 ft.; Chittagong; Canton.

Oleaceæ

***Osmanthus fragrans* Lour.**

Temperate Himalaya 4,000 to 7,000 ft.; Garhwal to Sikkim.

***Osmanthus suavis* King.**

Subtropical Himalaya, Sikkim and East Nepal, 9,000 to 10,000 ft.

A small tree found on Tonglu and beyond. The flowers are very sweet scented.

Euphorbiaceæ

***Ostodes paniculata* Bl.**

Sikkim Himalaya 0 to 5,000 ft.; Bhutan; Sylhet; Martaban and Java.

N. "Bepari"; L. "Palok kung".

Melastomaceæ

***Oxyspora paniculata* DC.**

Subtropical and Temperate Himalaya, N. Nepal to Bhutan, 3,000 to 7,000 ft.; Khasia Hills, 3,000 to 5,000 ft.

N. "Tulasi".

A very common shrub.

Rubiaceæ

***Pæderia foetida* Linn.**

From the Central and East Himalaya, up to 5,000 ft.; southward to Malacca, and westward to Calcutta; Malaya Archipelago, Borneo.

N. "Biri"; L. "Takpoodrik".

The fruit is used to blacken the teeth.

APPENDIX IV—*contd.*

Passifloraceæ

Passiflora Bankell Benth.

Australia.

Passiflora edulis Sims.

Brazil.

Passiflora Herbertiana Ker-Gawl.

Australia.

Passiflora Vespertilli Linn.

Tropical America.

Malvaceæ

Pavonia Præmorsa Cav.

South Africa.

Pavonia Splinifex Cav.

Warm parts of America.

Araliaceæ

Pentapanax Leschenaultii Seem.

Sikkim 6,000 to 10,000 ft.; South Decan and Ceylon in the mountains; Burma.

N. "Kursimla"; L. "Kantiongrik".

A climbing species.

Vacciniaceæ

Pentapterygium Hookeri Clarke.

Himalaya.

Pentapterygium serpens Klotz.

Sikkim and Bhutan 3,000 to 8,000 ft.

An epiphytic shrub; the woody bulbous root becomes very large.

Caprifoliaceæ

Pentaptyxis stipulata Hk. f.

Sikkim Himalaya 6,000 to 10,000 ft.

A rather pretty shrub, common in places round Darjeeling, *e.g.*, along the Railway line between Ghum and Sonada.

Cactaceæ

Pereskia Blee DC.

New Grenada.

A scandent thorny shrub. Used as a Stock plant for Epiphyllum.

Lauraceæ

Persea Indica Spreng.

Canary Islands.

Rosaceæ

Persica vulgaris Mill.

Europe and Asia.

The "peach" flowers and fruits; it is cultivated by the Nepalese and Lepchas to a small extent, but the fruits does not ripen in Darjeeling.

Persica vulgaris Mill. var. *lævis*.

The "Nectarine". California, S. America.

Persica vulgaris Mill. var. *sakugaki*.

Japan.

A Japanese horticultural variety. Flowers in early spring when leafless, like the Peach.

Saxifragaceæ

Philadelphus brachybotrys Vilm. & Bois.

China.

Philadelphus coronarius Linn.

Temperate Himalaya 5,000 to 9,000 ft.; Kashmir to Bhutan.

"Mock-Orange". Flowers freely. Propagated from cuttings.

Philadelphus Delavayi L. Henry.

China.

Philadelphus Gordonianus Lindl.

North Western America.

Philadelphus grandiflorus Willd.

Southern United States.

Philadelphus insignis Carr.

Locality doubtful.

Philadelphus Lewisii Pursh.

North America.

Philadelphus Satsumi Sieb. ex Lindl.

Japan.

A free flowering shrub. Propagated from cuttings.

Philadelphus Wilsonianus Kohne.

Acanthaceæ

Phlogacanthus pubinervis T. Anders.

Sikkim 5,000 to 7,000 ft.; Bhutan, Assam and Khasia Hills, 3,000 to 5,000 ft.

L. "Chongkek".

Lauraceæ

Phoebe lanceolata Nees.

Subtropical Himalaya, from Simla Eastwards up to 6,000 ft.; Khasia Hills; Burma, Martaban and Tenasserim; South Deccan, Nilgiri Hills and southward at 3,000 ft.

N. "Ghankrikath"; L. "Marshiong kung".

Palmeæ

Phoenix recinata Jacq.

South and Tropical Africa.

Labiateæ

Phormium Cookianum Le jolis.

New Zealand.

Rosaceæ

Photinia integrifolia Ldl.

Central and Eastern Himalaya, Nepal to Bhutan 4,000 to 7,000 ft.; Khasia Hills, 3,000 to 4,000 ft.

N. "Phalami kath".

A common wild plant of the neighbourhood, often found growing on other trees, or on large rocks.

Photinia japonica Ldl.

Japan.

The "Loquat". It has not fruited in this garden, but is sometimes cultivated at 3,000 to 4,000 ft., elevation.

APPENDIX IV—*contd.*

Photinia Lindleyana W. & A.
Nilgiri Hills.

Gramineæ

Phyllostachys aurea A. & C. Rev.
China.

A very pretty species of dwarf bamboo.

Phyllostachys bambusoides Sieb. & Zucc.
Japan.

Phyllostachys castillanensis Hort.
Japan.

Phyllostachys flexuosa A. & C.
Japan and China.

Phyllostachys mitis A. & C. Riv. = **Bambusa mitis** Poir.

Phyllostachys nigra Munro.
China and Japan.

A very ornamental bamboo which grows well in Darjeeling.

Phyllostachys quadrangularis Rendl.
This species grows well and rapidly covers a large area of ground, making long stout culms.

Phyllostachys qullal A. & C.
Japan.

Pinaceæ

Picea ajanensis Fisch. = **P. jezoensis** Maxim.
Japan. Yezo or Hondo Spruce.
Grows well and makes a shapely plant.

Picea Morinda Link.
Temperate Himalaya, 6,000 to 11,000 ft.; Afghanistan.
Makes a very handsome tree, grows quickly and cones well. This is one of the most handsome conifers and steep hillsides clothed with it are one of the most striking sights of Northern Sikkim.

Simarubaceæ

Pterasma nepalensis Benn.
Himalaya.

Pterasma quassioides Benn.
Subtropical Himalaya, Jumu to Nepal, ascending to 8,000 ft. in Garhwal; Bhutan; Southern China.

Ericaceæ

Pieris formosa D. Don.
Eastern Himalaya, from Nepal to Bhutan, 6,000 to 10,000 ft.; Assam.
N. "Angari".
A small tree of the drier parts of Sikkim.

Pieris ovalifolia D. Don.
Temperate Himalaya, 3,000 to 8,000 ft., from Kashmir to Bhutan; Khasia Hills, 3,000 to 5,000 ft.; British Burma; Japan.
N. "Angari".
Common in the district.

Pinaceæ

Pinus canariensis C. Sm.
Canary Islands.

Pinus densiflora Sieb. & Zucc.
Japan.

This species grows better in Darjeeling than any other pinus. It cones and bears fertile seed when ten years of age and 12 feet high.

Pinus excelsa Wall.

Temperate Himalaya, 6,000 to 12,000 ft.; Afghanistan.
Grows and cones well. Bhutan pine.

Pinus formosana Hayata. = **P. parviflora** Sieb. & Zucc.
Formosa.

Pinus Khasya Royle. = **Pinus insularis** Endl.

Khasia, Chittagong and Burmese Hills, 3,000 to 7,000 ft., Khasia pines.

Pinus Lariole Poir.
Corsica, South Europe.

Pinus longifolia Roxb.

Outer Himalayan Ranges from the Indus to Japan, 1,500 to 7,500 ft.; Afghanistan. It can be grown also in the plains.

L. "Neet kung".

Although found growing wild only in the hottest valleys and on the driest slopes of the district, this tree thrives and make a tall tree with a massive trunk in the town of Darjeeling.

Pinus Koraiensis Sieb. & Zucc.
Corea and Japan.

Pinus Massoniana Lamb.
Japan.

Pinus Montezumæ Lamb.
Mexico.

Pinus monticola Dougl.
Northern California.

Pinus patula Schlech. & Cham.
Mexico.

Grows well and makes a good specimen.

Pinus sylvestris Linn.
Britain.

"Scotch Fir."

Pinus Thunbergii Parl.
Japan.

Leguminosæ

Piptanthus nepalensis D. Don.
Temperate Himalaya, Sikkim, Bhutan, 7,000 to 9,000 ft.
A shrub common at 8,000 to 10,000 ft., very pretty when in flower, as it resembles the Laburnum.
Produces seed very freely.

Pittosporaceæ

Pittosporum Buchananii Hk. f.
New Zealand.

Pittosporum cornifolium A. Cunn.
New Zealand.

Pittosporum eugenoides A. Cunn.
New Zealand.

APPENDIX IV—*contd.*

Pittosporum floribundum W. & A.

Subtropical Himalaya, Sikkim to Garhwal, ascending to 5,000 ft.; Khasia Hills and Mishmi; Western Peninsula.

Very common about Darjeeling and up to 8,000 ft. The strongly scented yellow flowers are borne in April-May. The seeds are oily.

Pittosporum Tobira Dryand. Japan.

Pittosporum undulatum Vent. Australia.

Platanaceæ

Platanus occidentalis Linn. North America.

Platanus orientalis Linn. South Europe.

Palmae

Plectocomia himalayana Griff. Sikkim Himalaya, 4,000 to 7,000 ft. L. "Runool".

The cane most common in the neighbourhood of Darjeeling.

Melastomaceæ

Pleroma macrantha Hk. f. Brazil.

A very desirable plant, bearing in autumn large violet-coloured flowers. Propagated from cuttings. This shrub will bear pruning.

Compositæ

Podachænum paniculatum Benth. Mexico.

Taxaceæ (Coniferæ)

Podocarpus chinensis Wall. = **P. macrophyllus** var. *Maki*. China and Japan.

Podocarpus macrophyllus D. Don. Japan.

Podocarpus Neriifolia D. Don. Tropical Himalaya, Nepal, Sikkim 3,000 ft., Khasia Hills; Burma; Malaya Peninsula; Andaman; Java; Sumatra; Borneo.

Is hardy in Darjeeling.

Podocarpus taxifolia Humb. = **P. montanus** Lodd. Peru, Andens, S. America.

Labiatae

Pogostemon glaber Benth. Himalaya.

Polygalaceæ

Polygala arillata Ham. Subtropical and Temperate Himalaya, Nepal 2,000 to 6,000 ft. to Khasia Hills, 4,000 to 5,000 ft.; Western Peninsula; Ava; Ceylon; Malaya; Southern China.

From the pounded root of this plant is prepared a substance called "Marcha" sold in thin cakes in the bazar and used in brewing beer.

Rhamnaceæ

Pomaderris apetala Labill. Australia.

Pomaderris racemosa Hook. Australia.

Salicaceæ

Populus ciliata Wall. Temperate Himalaya, 4,000 to 10,000 ft., Kashmir to Bhutan. N. "Phirphiri". L. "Ripik kung".

Rosaceæ

Potentilla fruticosa Linn. Temperate and Subalpine Himalaya, Kashmir to Sikkim, 8,000 to 16,000 ft. North Asia and Europe. A small shrub plentiful at elevations of 11,000 to 13,000 ft.

Verbenaceæ

Premna interrupta Wall. Himalaya.

Rosaceæ

Prinsepia utilis Royle. Temperate Himalaya, 4,000 to 8,000 ft., Hazara to Sikkim and Bhutan; Khasia Hills, 5,000 to 6,000 ft. A spreading thorny shrub of the northern drier parts of Sikkim, but grows, flowers and fruits well in Darjeeling. Propagated from seeds or cuttings.

Prunus acuminata Wall. Temperate, Central and Eastern Himalaya from Nepal and Sikkim, 5,000 to 7,000 ft., to Mishmi; Khasia Hills, 4,000 ft. N. "Lali". L. "Lik kung".

It is a common tree of the forests at this elevation is evergreen and makes a shapely specimen. The timber, which is of a reddish tint is good, though not of great size.

Prunus caroliniana Ait. North America.

Prunus domestica Linn. = **P. communis** Huds. var. *domestica*. Europe. N. "Aloobukhara".

The "Plum" is cultivated by a few crofters round Darjeeling and at a little lower elevation.

Its white flowers, profusely borne are conspicuous in early spring. The fruit comes into market, but is small and not properly ripened. It is used by European residents, cooked and preserved.

Prunus Integrifolia Walp. Peru.

Prunus japonica Thunb. Japan, China.

Prunus Lauro-cerasus Linn. Levant. The "Laurel". It flowers freely and sets fruits. It may be propagated by cuttings.

Prunus maritima Wangenh. North America.

APPENDIX IV—*contd.*

Prunus Mume Sieb. and Zucc.

Japan.

An ornamental flowering tree from Japan, very showy in early spring, flowering when leafless.

Prunus nepalensis Hort. ex c. koch. — **P. nepaulensis** Steud.

Temperate Himalaya, from Kumaon 6,000 ft.; to Sikkim 7,000 to 10,000 ft.; Khasia Hills, 4,000 to 6,000 ft.

N. "Arupate".

A common tree in Darjeeling, sows itself very freely. It flowers in late spring, with the young leaves. Its fruits ripen in late autumn after the leaves have fallen. The fruit is not edible.

Prunus Padus Linn.

Temperate Himalaya, from Muree to Bhutan, 6,000 to 12,000 ft.; Westward to Great Britain and Siberia "Bird Cherry".

Prunus paniculata Thunb.

Japan.

"Japanese flowering Cherry." There are several varieties of the above, which are showy when in spring the tree flowers in a leafless state.

Prunus paniculata Thunb. var. *Aura-no-gami*.

Japan.

A horticultural variety.

Prunus paniculata Thunb. var. *Kurosiki-Gakuru*.

Japan.

A horticultural variety.

Prunus paniculata Thunb. var. *Ukon*.

Japan.

A horticultural variety.

Prunus paniculata Thunb. var. *Yoshima*.

Japan.

A horticultural variety.

Prunus Persica Stokes.

Temperate Asia.

Prunus Puddum Roxb. = **Prunus cerasoides** Don.

Temperate Himalaya, from Garhwal to Bhutan, 3,000 to 8,000 ft., Burma.

N. "Paiyu"; L. "Kongi-kung"

This tree grows to a fair size and has a spreading habit. It is one of the best native flowering trees; producing flowers in October-November. The colour of the flower varies from nearly white to dark rose. The fruit is not edible.

Prunus rufa Steud.

Central and Eastern Temperate Himalaya, Nepal and Sikkim 10,000 to 12,000 ft.; Bhutan.

A small-sized tree.

Prunus tomentosa Thunb.

Japan.

Prunus tomentosa var. *endostricta* Koehne.

Japan.

Prunus triflora Roxb.

Ava Hills; China.

Flowers in March.

Prunus triloba Roxb.

China.

Flowers in March.

Myrtaceæ

Psidium Guajava Linn.

Tropical America.

Punicaceæ

Punica granatum Linn.

Persia.

N. "Darim".

"Pomegranate" cultivated to a small extent at lower elevations.

Rosaceæ

Pyrus americana DC.

North America.

Pyrus Aucuparia Ehrh.

Western Temperate Himalaya, Kashmir to Kumaon, 13,000 ft., Turkistan to the Atlantic; Siberia to Northern China and Japan.

"Mountain-Ash."

Pyrus baccata Linn.

Temperate Himalaya, Kashmir to Bhutan, 6,000 to 10,000 ft.; Khasia Hills, 6,000 ft.; Siberia to Manchuria.

Pyrus communis Linn.

Kashmir, Persia; Westward to Europe.

"The Pear" bears fruit in this district and in Sikkim, but the fruit remains hard and does not ripen.

Pyrus coronaria Linn.

North America.

Pyrus Cydonia Linn.

Southern Europe.

"The Quince." It fruits fairly freely in the garden.

Pyrus elæagnifolia Pall.

Asia Minor.

Pyrus foliolosa Wall.

Temperate Himalaya, Kunawar to Sikkim, 9,000 to 12,000 ft.

A small tree, found at elevations of 12,000 to 13,000 ft. In autumn the silvery brown tint of the leaves of this tree are a noticeable feature of the gorgeous foliage coloration of the forests.

Pyrus Griffithii Hk. f.

Sikkim Himalaya, 6,000 to 9,000 ft., Bhutan.

Pyrus Hostii Hort.

Europe.

Pyrus insignis Hk. f.

Sikkim Himalaya 8,000 to 11,000 ft.

Resembles the "Mountain-Ash".

Pyrus japonica Thunb.

Japan.

Besides its full crop of flowers when the shrub is bare in winter, this species flowers irregularly all the year round. The fruits also are ornamental. Propagated from cuttings.

APPENDIX IV—*contd.*

***Pyrus longipes* Coss & Dor.**

Algeria.

***Pyrus Malus* L.**

Europe, Himalaya.

The "Apple" is cultivated by a few planters.

It has ripened fruit at Kalimpong. In Sikkim there is a fair-sized orchard in the Iachung valley at 8,000 ft. elevation.

***Pyrus Malus* L. var. *Red Indian*.**

A cultivated variety of the Apple.

***Pyrus Maulei* Masters.**

Japan.

***Pyrus microphylla* Wall.**

Temperate Himalaya, Sirmone, Sikkim, 10,000 to 14,000 ft.

***Pyrus Neulliensis* Hort.**

***Pyrus nivalis* Levant.**

Europe.

***Pyrus prunifolia* Willd.**

Siberia.

A very showy flowering tree. Flowers in April.

***Pyrus prunifolia* Willd. var. *fructu-lutea*.**

***Pyrus Ringo* Wenzig.**

Japan.

***Pyrus Schiedeckii* Hort.**

***Pyrus Siebaldi* Regel.**

Japan.

***Pyrus sikkimensis* Hk. f.**

Sikkim Himalaya, 7,000 to 10,000 ft.; Bhutan.

A fair-sized tree of upper Sikkim; fruit not edible. China.

***Pyrus vestita* Wall.**

Temperate Himalaya, Garhwal to Sikkim, 9,000 to 10,000 ft.

A tree of 11,000 to 12,000 ft. elevation, the fruit is not unpleasant in taste when ripe. The foliage, turning first silver and then brown, is a feature in the autumn landscape at higher elevations.

***Pyrus Wallichii* Hk.**

Himalaya.

***Pyrus yunnanensis* Franch.**

Yunnan.

Cupuliferae

***Quercus acuminata* Roxb.**

India.

***Quercus acuta* Ham.**

Japan.

***Quercus dealbata* Hk. f. & T.**

Bhutan and Khasia Hills, 3,000 to 6,500 ft.; Naga Hills, 5,800 ft.

***Quercus dentata* Thunb.**

Japan.

Grows vigorously here.

***Quercus fenestrata* Roxb.**

Sikkim Himalaya, 5,000 to 8,000 ft.; Khasia Hills, 4,000 to 5,000 ft.; Manipore, 4,000 to 8,000 ft.

***Quercus glabra* Thunb.**

Japan.

An evergreen species.

***Quercus glauca* Thunb.**

Subtropical Himalaya, Kashmir to Bhutan, 3,000 to 6,000 ft.; Khasia Hills, 2,000 to 4,500 ft.; Japan.

An evergreen species.

***Quercus Griffithii* Hk. f. & T.**

Khasia Hills, 3,000 to 5,000 ft.; Manipore; Burma.

There are plantations of this species on some local Tea Gardens for production of firewood. The plant coppices successfully.

***Quercus incana* Roxb.**

Temperate Himalaya, from the Salt Range and Murree to Eastern Nepal 4,500 to 7,500 ft.; Shan States of Upper Burma.

This species grows and fruits well and makes a handsome specimen in the town and at lower elevations.

***Quercus lamellosa* Sm.**

Eastern Himalaya from Nepal to Bhutan, Naga and Duphla Hills, 5,000 to 8,000 ft.; Manipore 7,000 to 8,000 ft.

N. "Budgrant".

One of the large growing Oaks of the neighbouring forests affording good timber.

***Quercus Libani* Oliv. var. *vestita*.**

Asia Minor.

***Quercus lineata* Bl.**

Sikkim, Himalaya, 4,000 to 7,000 ft.; Bhutan; Khasia and Naga Hills, 5,000 to 6,000 ft.; Java.

N. "Phalant"; L. "Siri kung".

Timber good. Fruit small.

***Quercus lusitanica* Lam.**

Mediterranean region.

***Quercus mongolica* Fisch.**

Asia.

***Quercus pachyphylla* Kurz.**

Sikkim, Himalaya, 6,000 to 10,000 ft.; Manipore, 7,000 to 9,000 ft.

N. "Thulo Katus"; L. "Hlo-Sri-kung".

Timber good. Fruits bedded together in a scaly mass.

***Quercus phillyraeoides* A. Gray.**

Japan.

An evergreen species.

***Quercus palustris* Du Roi.**

North America.

***Quercus pseudo-coccifera* Desf.**

Central and Southern Europe.

***Quercus semicarpifolia* Sm.**

Temperate Himalaya, from Kumaon to Bhutan and Manipore, 6,000 to 12,000 ft.; Afghanistan.

N. "Khosru".

Grows well in a young state and makes well-shaped tree of medium size, but dies off at maturity. Flowers well but does not fruit in the garden.

APPENDIX IV—*contd.*

***Quercus serrata* Thunb.**

Eastern Temperate Himalaya, from Nepal to Sikkim, 5,000 to 6,000 ft., Bhutan; Manipore and Khasia Hills, 3,000 to 5,500 ft.; Shan Hills, China and Japan.

***Quercus spicata* Sm.**

Tropical Himalaya, from Nepal Eastwards 2,000 to 4,000 ft., Assam, Manipore and Southwards to Tenasserim and Malaya.

N. "Arkowlo"; L. "Kucheeing kung".

A good firewood.

***Quercus variabilis* Blume.**

Japan.

***Quercus Vaseyana* Buckl.**

Texas.

Linaceæ

***Reinwardtia tetragyna* Planch.**

Hilly parts of India, ascending to 6,000 ft.

A pretty, small shrub found at lower elevations

Almost always in flower in Darjeeling.

Propagated by its rooted offsets, by seeds, or by cuttings.

***Reinwardtia trilgyna* Planch.**

Found on drier banks than the above. It is a plant with smaller leaves and flowers.

Rhamnaceæ

***Rhamnus cathartica* Linn.**

Europe.

***Rhamnus Frangula* Linn.**

Europe.

***Rhamnus nipalensis* (Wall.) Laws.**

Central and Eastern Himalaya; Nepal; Sikkim, 3,000 to 6,000 ft.; Khasia Hills, 3,000 to 4,000 ft.; Assam; Burma.

L. "Patnok kung".

Ericaceæ

***Rhododendron Anthopogon* D. Don**

Alpine Himalaya, 11,000 to 16,000 ft., Kashmir to Bhutan; Central and Northern Asia.

N. "Dhupi"; L. "Paluchulu".

The tips of the branches of this dwarf species are used as incense

***Rhododendron arboreum* Sm.**

Temperate Himalaya, 5,000 to 10,000 ft., Kashmir to Bhutan; Khasia Hills, 5,000 to 6,000 ft.; Burma.

N. "Chimal"; L. "Etok".

The *Rhododendron* which is most widely known.

The flowers vary in colour from white to dark crimson.

In the larger *Rhododendrons* the general names are as follows:—

For those with larger leaves N. "Gurans"; L. "Kemu"; Bh. "Kensing". For the smaller N. "Chimal"; L. & B. "Etok".

***Rhododendron arboreum* Sm. var. *Campbellii*.**

A form with dark crimson flowers and with the back of the leaf of a rusty colour.

***Rhododendron arboreum* Sm. var. "W. Gill".**

A horticultural variety.

***Rhododendron argyrophyllum* (1521 of Wilson) Franch.**

Central China.

***Rhododendron augustinii* Hemsl.**

China.

***Rhododendron barbatum* Wall.**

Temperate Himalaya, 8,000 to 12,000 ft., Kumaon to Bhutan.

The well-known "bearded *Rhododendron*" with deep crimson flowers.

***Rhododendron camellæflorum* Hk. f.**

Eastern Himalaya, Eastern Nepal to Bhutan, 9,000 to 13,000 ft.

***Rhododendron campanulatum* D. Don.**

Alpine Himalaya.

***Rhododendron campylocarpum* Hk. f.**

Eastern Nepal and Sikkim, 11,000 to 14,000 ft.

Flowers yellow.

***Rhododendron campylocarpum* X *Aucklandii* Arigen.**

Horticultural variety.

***Rhododendron ciliatum* Hk. f.**

Sikkim Himalaya, 9,000 to 10,000 ft.

A dwarf shrub, which grows and flowers well in Darjeeling and bears more sun and exposure than most *Rhododendrons*.

***Rhododendron cinnabarinum* Hk. f.**

Sikkim, Bhutan, 10,000 to 12,000 ft.

Flowers brick red. Synonym **R. Royale** Hf.

***Rhododendron Dalhousiæ* Hk. f.**

Sikkim Himalaya, 6,000 to 9,000 ft., Bhutan 6,800 ft.

An upright shrub, often epiphytic, bearing large white fragrant flowers and large seed vessels.

***Rhododendron Davidi* Franch.**

(1274 of Wilson)

Central China.

***Rhododendron decorum* Franch.**

Central China, Yunnan.

***Rhododendron discolor* Franch**

(855 Wilson.)

China.

***Rhododendron Edgeworthii* Hk. f.**

Sikkim Himalaya, 7,000 to 9,000 ft.; Bhutan.

A sparse shrub often epiphytic. Flowers large white and very fragrant

***Rhododendron Falconeri* Hk. f.**

Eastern Nepal to Bhutan, 9,000 to 13,000 ft.

L. "Khegoop".

A small tree but slow growing. It does best in shade and its large leaves are handsome apart from the flowers.

***Rhododendron Fargesii* Franch**

China.

***Rhododendron fulgens* Hk. f.**

Nepal, Sikkim, 10,000 to 14,000 ft.

APPENDIX IV—*contd.*

Rhododendron glaucum Hk. f.

Sikkim to Bhutan, 10,000 to 12,000 ft.

Rhododendron glaucanum (Hort).

(882 Wilson.)

Rhododendron grande Wight.

Sikkim Himalaya, 7,000 to 11,000 ft., Bhutan, 7,000 ft.

A species common in the neighbourhood (*e.g.*, Sanchal) and one of the best for planting in Darjeeling. Flowers in March.

Rhododendron ledifolium G. Don.

China.

A species which grows in Darjeeling well and popular as a pot plant. Propagated both from seed and cuttings.

Rhododendron Griffithianum Wt.

Himalaya.

Rhododendron lepidotum Wall.

Temperate and Alpine Himalaya, 8,000 to 15,000 ft., Kashmir to Bhutan

Rhododendron leptocarpum Nutt.

Himalaya.

Rhododendron Maddeni Hk. f.

Sikkim and Bhutan, 6,000 ft.

Rhododendron micranthum Turcz.

China.

Rhododendron moupinense Franch

China

Rhododendron Souliei Franch.

China.

Rhododendron stenophyllum Makino.

Japan.

Rhododendron Thomsoni Hk. f.

Eastern Nepal and Sikkim, 11,000 to 13,000 ft.

Rhododendron Thomsoni X **Kewensis**.

Horticultural origin.

Rosaceæ

Rhodotypos kerrioides Sieb. & Zucc.

Japan.

Anacardiaceæ

Rhus acuminata DC.

Eastern Himalaya.

N. "Rani valayo" L. "Serhnyok kung".

Often found growing on rocks and trees. The foliage turns orange and crimson in autumn. The juice causes blisters.

Rhus Cotinus L.

Spain to Caucasus.

Rhus Delavayi Franch.

China.

Rhus excisa Thunb. var. *pallida*.

South Africa.

Rhus insignis Hk. f.

Sikkim Himalaya, 3,000 to 6,000 ft.; Khasia Hills, 4,000 ft.

N. "Kag valayo" L. "Seru kung".

A handsome tree. The juice causes blisters.

Rhus semi-alata Murr.

Temperate Himalaya, 3,000 to 6,000 ft.; Khasia Hills, 3,000 to 5,000 ft.

N. "Bhokiamile" L. "Tungher kung".

The seeds are eaten raw or boiled, as a remedy for dysentery.

Rhus semi-alata Murr. var. *purpurea*.

Rhus succedana Linn.

Temperate Himalaya from Kashmir, 3,000 to 6,000 ft. to Sikkim, 5,000 to 8,000 ft. and Bhutan; Khasia Hills, 2,000 to 6,000 ft.; Japan.

Rhus vernicifera DC.

Japan.

Saxifragaceæ

Ribes alpinum Linn.

Europe.

Ribes auroum Pursh. var. *leptobotrya*.

North and Central America.

Ribes fasciculatum Sieb. & Zucc. var. *chinensis*.

China and Japan.

Ribes glaciale Wall.

Temperate and Alpine Himalaya, from Bhutan to Kashmir, 7,000 to 12,000 ft.

A shrub often epiphytic or growing on rocks.

The fruit is scarcely edible.

Ribes luridum Hk. f. & T.

Sikkim Himalaya, 10,000 to 12,000 ft.

A shrub with palatable fruit.

Ribes rubrum Linn.

Western Himalaya, Kashmir to Kumaon, 8,000 to 12,000 ft., Alpine, Europe, Caucasus; Altai.

"The Red Currant" is grown locally to a small extent.

Leguminosæ

Robinia Pseudacacia Linn.

North America.

Flowers very freely.

Rosaceæ

Rosa Allinii Burnat & Grenli.

Europe

Rosa alpina Linn.

Europe.

Rosa arvensis Huds.

Europe (Britain).

Rosa Banksiæ R. Br.

China.

"Banksia Rose." It flowers in March-April.

Is a very rampant grower but may be hard pruned.

Rosa Banksiæ Br. forma *lutea*, Biswas, f. n.

A yellow flowered form of the above.

APPENDIX IV—contd.

- Rosa blanda** Ait.
North America.
- Rosa canina** Linn.
Europe (Britain).
The "Dog-rose".
- Rosa Cinnamomea** Linn.
Europe and North Asia.
- Rosa gallica** Linn.
Europe.
- Rosa glauca** Vill.
Europe.
- Rosa Iwara** Sieber.
Japan.
- Rosa macrophylla** Lindl.
Temperate Himalaya from Murree, 3,500 to 10,000 ft., to Sikkim, 8,000 to 10,000 ft.; China.
This very striking rose is found in the valleys of Northern Sikkim at an altitude of 9,000 to 11,000 ft.
Its large red flowers borne in June-July or the succeeding large orange red hips, are equally handsome. It flowers and fruits in this garden.
It is easily raised from seed.
- Rosa microcarpa** Idl.
China.
- Rosa moschata** Herrm.
Temperate Central Himalaya from Murree to Nepal; Afghanistan.
A very rampant climber, it ascends to the top of quite tall trees, but flowers in a more shrubby state and bears cutting back.
- Rosa multiflora** Thunb.
China and Japan.
- Rosa nitida** Willd.
North America
- Rosa nutkana** Presl.
Nookha Sound.
North and West America.
- Rosa phœnicia** Boiss.
Cilicia; Syria.
- Rosa polyanthemum** Lunell.
N. Dakota, U. S. A.
- Rosa rubiginosa** Linn.
Europe.
The "Sweet Brier" is not a vigorous or a long-lived shrub in the garden. The leaves have the characteristic scent.
- Rosa rugosa** Thunb.
Japan.
This distinctive rose does well in Darjeeling, flowers and fruits well, and spreads rapidly by root suckers from which, as well as from seed, it is propagated.
- Rosa rugosa** Thunb. var. *alba*.
Japan.
A white flowered form of the above.
- Rosa sempervirens** L.
South Europe and India. Khasia Hills, 2,000 to 5,000 ft.
Mishmi Hills.
- Rosa sericea** Lindl.
Temperate Himalaya, Kumaon to Sikkim 9,000 to 14,000 ft.
China, Yunnan.
Found at 8,000 to 10,000 ft. Its flower is light yellow in colour and is 4-petalled. The plant has rather a straggling habit.
- Rosa Soulieana** Crep.
China.
- Rosa spinosissima** Linn
Europe.
- Rosa spinosissima** Linn. var. *alba*.
- Rosa villosa** Linn var. *pomifera*.
Europe; W. Asia.
- Rosa** "Crimson Rambler".
A horticultural variety.
The "Rambler" Roses, do very well in Darjeeling and neighbourhood, flowering very freely in May-June.
They may be either allowed to ramble over fences or trees, or the growth which has flowered may be cut entirely away as soon as it has flowered, the resulting strong basal shoots being then laid in for next year's flowering.
Propagated from cuttings.
- Rosa** "Tea scented".
A horticultural variety. ;
The "Tea Roses" are, of all kinds, the most suitable for Darjeeling. They flower in late spring and again in late autumn. At high elevations they are pruned in July, only the growths which have flowered being removed. At lower elevations (4,000 ft and below) they are hard pruned in November.
- Rosa** "China".
Horticultural variety.
These roses grow well and flower all through the year.
- Rosa** "Hybrid Perpetual".
Horticultural variety.
The "H. P." roses are not as a class very good growers here, though some varieties, the more vigorous growers, do well. The fact that a particular variety flourishes in Europe is no guide to its conduct in Darjeeling, each must be tested for itself.
They are usually pruned in the way usual for the class, and at the end of December.
- Rubus Andersonii** Lefin
Europe.
- Rubus ellipticus** Sm.
Temperate and Subtropical Himalaya, Sermore to Sikkim, 2,000 to 7,000 ft., Khasia Hills, Burma, Yunnan, Canara southward, Ceylon.
N. "Ashelu"; L. "Kashyem-pot".
A spreading bush bearing abundant yellow fruits of very agreeable taste.
- Rubus fragarioides** Bertol.
Eastern temperate Himalaya, in damp places, Sikkim, 10,000 to 13,000 ft.
A plant with a Raspberry-like fruit of few carpels, edible.

APPENDIX IV—contd.

Rubus fruticosus Linn.

Western temperate Himalaya, 3,000 to 7,000 ft., westward to the Atlantic.

The "Blackberry" Stems rooting at their tips, from which the plant is propagated.

Rubus Hookeri Focke.

Eastern Temperate Himalaya, Sikkim, 7,000 to 9,000 ft.

Bears a large fruit, somewhat like a strawberry of very agreeable taste.

Rubus laciniatus Willd.

Garden origin.

Rubus lasiocarpus Sm.

Temperate Himalaya, Khasia to Sikkim, 4,000 to 10,000 ft., Burma, Western Peninsula; Ceylon; Java.

A common shrub of elevations, 5,000 to 7,000 ft. The small black fruit is scarcely edible.

Rubus lineatus Reinw.

Sikkim Himalaya, 6,000 to 9,000 ft.

Very common on open hilltops and in clearings at 6,000 to 8,000 ft. elevation. The silvery leaves are very noticeable.

Rubus lutescens Franch.

Yunnan.

Rubus moluccanus Linn.

Central and Eastern Himalaya, 3,000 to 7,000 ft., Khasia Hills, 3,000 to 5,000 ft., Burma; Eastern and Western Peninsulas, Ceylon, Malaya

Bears edible fruit.

Rubus niveus Wall.

Temperate Himalaya, Kashmir to Bhutan, 6,000 to 10,000 ft. in the west, 5,000 to 11,500 ft. in the east

A small shrub of elevations 9,000 to 13,000 ft. bears an edible yellow fruit.

Rubus paniculatus Sm.

Temperate Himalaya, from Rajaori, 3,000 to 7,000 ft., to Sikkim 6,000 to 8,000 ft.; Khasia Hills, 4,000 to 5,000 ft.

A shrub common at this elevation, sometimes scandent. Fruit black.

Rubus rosafolius Smith.

Temperate Himalaya, from Kumaon 7,000 to 10,000 ft., to Sikkim, 4,000 to 7,000 ft., Khasia Hills, 3,000 to 4,000 ft., Ava and Martaban Hills; Java.

A large straggling thorny shrub with big red edible fruits, naturalised and cultivated in the tropics and warm temperate regions.

Rubus Thomsoni Focke.

Sikkim Himalaya, 8,000 to 11,000 ft.

L. "Shempot".

Sabiaceæ

Sabia leptandra Hk. f. & T.

Sikkim Himalaya, 5,000 to 7,000 ft.

Salicaceæ

Salix babylonica Linn.

Levant.

This species has been extensively planted in the neighbourhood, branches root readily if planted in moist ground. "The Weeping Willow."

Salix Caprea Linn.

Europe.

The "Sallow" or "Goat-Willow".

Salix potederana var. *cinnerea*.

Europe.

Salix Sikkimensis Anders.

Himalaya.

Salix tetrasperma Roxb.

India and Malaya.

Caprifoliaceæ

Sambucus adnata Wall.

Nepal and Sikkim, 5,000 to 10,000 ft.

N. "Chareabhang".

A dwarf shrub, very pretty when its large corymbs of orange red fruits are ripe.

Sambucus javanica Bl.

Assam and Eastern Bengal. Khasia Hills and Sikkim, up to 6,000 ft.; Java, China and Japan.

N. "Galen" L. "Pantom".

This shrub will only grow in damp shady spots.

The fruit is not unlike that of the "Elderberry".

Sambucus nigra Linn.

Europe and North Africa.

"Elderberry" grows fairly well, flowers and ripens fruit. Propagated from either seeds or cuttings. The variegated or golden form soon loses its leaf colouring in this climate.

Buxaceæ

Sarcococca pruniformis Thw. **S. saligna** (D. Don.) Muell. Arg.

Temperate Himalaya, Afghanistan; Murree to Bhutan, 5,000 to 9,000 ft.

Khasia Hills and Manipore, 5,000 to 6,000 ft.; Deccan; Ceylon; Malaya; Sumatra.

Theaceæ

Saurauja fasciculata Wall.

Eastern Subtropical Himalaya, Nepal, Sikkim 2,000 to 4,000 ft.

N. "Gogan"; L. "Safar Kung".

Very handsome shrub.

Saurauja Griffithii Dyer.

Assam.

Saurauja napaulensis DC.

Temperate Himalaya, Bhutan and Sikkim, 5,000 to 7,000 ft. to Gharwal 2,400 to 5,000 ft.; Khasia Hills, 5,000 ft.; Mishmi Hills.

A very striking plant, its large leaves giving it a very distinctive appearance. Leaves are fed to cattle.

Schima Wallichii Choisy

Eastern Himalaya, from Nepal and Sikkim, 2,000 to 5,000 ft. to Bhutan; Assam, Chittagong and the Khasia Hills 2,000 to 4,000 ft.; Burma; Sumatra.

N. "Chilauni", L. "Subrung kung".

The tree gives good firewood and good timber.

APPENDIX IV—*contd.*

Anacardiaceæ

Schinus terebinthifolius Raddi.
Brazil.

Schizandraceæ

Schizandra elongata Hk. f.
Himalaya, Java.

Schizandra grandiflora Ilk. f. & T.
Temperate Himalaya from Simla to Bhutan 6,000 to 10,000 ft.
The fruit is edible.

Saxifragaceæ

Schizophragma hydrangioides Sieb. & Zucc.
Japan.
"Climbing Hydrangea".

Compositæ

Senecio densiflora Wall.
Central Himalaya; from Nepal to Bhutan, 5,000 to 7,000 ft.; Khasia Hills, 4,000 to 6,000 ft.
Very showy when in flower.

Senecio veichlana Hemsl.
China.

Rutaceæ

Skimmia Laureola Hk.
Throughout the Temperate Himalaya from Murree to Mishmi, 6,000 to 10,000 ft.; Khasia Hills, 5,000 to 6,000 ft.; Afghanistan.
L. "Timburnyok".

Liliaceæ

Smilax ferox Wall.
S. China.

Solanaceæ

Solanum capsicastrum Link.
Brazil.
This miniature shrub is very pretty when in fruit.
It should be pinched to keep it to a compact shape especially if grown from seed.

Solanum jasminoides Paxt.
South America.
The "Potato-creeper" now well known in Darjeeling and used as a rapidly growing creeper to cover screens, walls and arches. It is almost always in flower.
It bears severe pruning. Propagated from cuttings or layers.

Solanum macrodon Wall.
Temperate Himalaya, 4,000 to 8,000 ft., Nepal to Bhutan; Khasia Hills 3,000 to 5,000 ft.
A shrub common in the district, but not showy.

Solanum Wendlandii Hk. f.
Costa Rica.
A very vigorous climber, flowers large pale purple. Propagated from cuttings. It is not hardy in Darjeeling, but is so up to 5,000 ft.

Leguminosæ

Sophora Davidli Kom.
China.

Sophora japonica Linn.
China and Japan.
The "Pagoda Tree" of China and Japan.

Sophora japonica Linn. var. *pendula*.
China and Japan.
A beautiful "Weeping" variety of the above.

Sophora tetraptera F. Mill.
Chile.

Sophora Moorcroftiana Bth.
Western Tibet, Ladak. Nubra valley 10,000 to 12,000 ft., Kashmir.
A very pretty dwarf shrub. Flowers very freely in April-May.

Spartium Junceum Linn.
Mediterranean Region and Canary Isles.
"Spanish Broom."

Rosaceæ

Spiræa arcuata Hk. f.
Sikkim Himalaya, subalpine 12,000 to 14,000 ft.
A small shrub of distinctive habit of high elevations.

Spiræa bella Sims.
Temperate Himalaya from Sirmore, 7,000 to 10,000 ft. to Sikkim and Bhutan, 6,000 to 12,000 ft.
A dwarf shrub of Upper Sikkim, bearing pink flowers very showy in May and June. Propagated by division, by rooted offsets, and by cuttings.

Spiræa betulæfolia Pall.
Asia and North America.

Spiræa bracteata Rafin var. *rotundifolium*.
Siberia.

Spiræa canescens D. Don.
Temperate Himalaya from Kashmir to Kumaon, 6,000 to 12,000 ft., Sikkim 10,000 to 12,000 ft.
A shrub about 3 ft. in height, used for hedges in Darjeeling.

Spiræa corymbosa Rafin.
North Eastern Asia and North America.
A plant commonly grown in Darjeeling and neighbourhood under the name of "May" or "Khasia May". Hedges are made of it. It flowers in April-May. Propagated by division, by rooted offsets, or by cuttings.

Spiræa Douglasi Hook.
North Western America.

Spiræa Henryi Hemsl.
China.

Spiræa lævigata L.
Siberia.

Spiræa media F. Schmidt.
Northern Asia.
Propagated by division, by rooted offsets, or by cuttings.

APPENDIX IV—*contd.*

***Spiraea miorantha* Hk. f.**

Eastern Temperate Himalaya, Sikkim 6,000 to 8,000 ft.,
Bhutan, 8,000 to 10,000 ft.

A shrub common in the locality and at this elevation
especially in damp places.

***Spiraea millefolium* Torr.**

California.

***Spiraea salicifolia* Linn. var. *paniculata* Ait. = *S. alba* Dur.**

America.

***Spiraea sorbifolia* Linn.**

Himalaya.

***Spiraea tomentosa* Linn.**

North America.

A pretty shrub. Propagated by division, by rooted
offsets, or cuttings.

***Spiraea ulmifolia* Scop.**

Europe and Siberia.

Anacardiaceæ

***Spondias acuminata* Roxb.**

Western Peninsula, Malabar, Concan Hills, Canara.

N. "Labsi", L. "Silot pot"

Fruit is edible.

Theaceæ

(*Ternstroemiaceæ*)

***Stachyurus himalaicus* Hk. f. & T.**

Eastern Himalaya, Nepal, Sikkim, 5,000 to 8,000 ft.,
Bhutan.

Menispermaceæ

***Stephania rotunda* Lour.**

Tropical Asia.

Sterculiaceæ

***Sterculia diversifolia* G. Don.**

Victoria.

***Sterculia plantanifolia* Linn. f.**

China and Japan.

Acanthaceæ

***Strobilanthes capitatus* T. Anders.**

Himalaya.

***Strobilanthes coloratus* T. Anders.**

Himalaya.

***Strobilanthes helictus* T. Anders.**

Himalaya.

***Strobilanthes divaricatus* T. Anders.**

Himalaya.

***Strobilanthes pectinata* T. Anders.**

Sikkim and Bhutan, 6,000 to 7,500 ft.; Khasia and
Jaintia Hills, 4,000 ft.

A shrub common in the district at Darjeeling elevation,
forming the undergrowth in the less dense part of
the forest or in clearings. Its lilac flowers are very
pretty and borne in profusion.

Styracaceæ

***Styrax Hookeri* Clarke.**

Sikkim and Bhutan 6,000 to 7,000 ft.

A small tree with white flowers produced in May.

***Styrax Obassia* Sieb. & Zucc.**

Japan.

Caprifoliaceæ

***Symphoricarpos racemosus* Michx.**

North America.

Styracaceæ

***Symplocos cratægloides* Ham.**

Sikkim and Bhutan 2,000 to 8,000 ft.; Khasia Hills,
Martaban and Japan.

***Symplocos javanica* Kunz. = *S. ferruginea* Roxb.**

Assam, Mergui, Malay.

***Symplocos ramosissima* Wall.**

Temperate Himalaya, 4,000 to 8,000 ft., Garhwal to
Bhutan; Khasia Hills, 4,000 ft.

Most species of *Symplocos* are called "Kharani" By
Nepalese and "Singnyok kung" by the Lepchas.
They are used only as poles and for firewood.

***Symplocos Sumuntia* Ham.**

Himalaya, 3,000 to 7,000 ft., Nepal to Bhutan; Khasia
Hills. Very showy when in flower owing to the pro-
fusion with which the flowers are borne.

***Symplocos Sumuntia* Ham. var. *floribunda*.**

Nepal to Bhutan; Assam; Khasia Hills.

***Symplocos theæfolia* Ham.**

Himalaya, Nepal to Bhutan, 5,000 to 8,000 ft.; Khasia,
4,000 to 6,000 ft.; Martaban, 5,000 to 7,000 ft.

A species very common round Darjeeling.

Myrtaceæ

***Syncarpia laurifolia* Tenore.**

Australia.

A fast growing tree. The leaves are apt to become
scorched in hot dry weather.

Oleaceæ

***Syringa Emodi* Wall.**

Subalpine Himalaya, 9,000 to 12,000 ft., Kashmir to
Kumaon.

***Syringa Emodi* Wall var. *aurea-variegata*.**

Himalaya.

***Syringa pinetorum* W. W. Smith.**

Yunnan.

***Syringa vulgaris* Fortune.**

Persia, Hungary, etc.

"Lilac" Flowers freely but the flower does not last
long. The tree is propagated from cuttings taken
when leafless.

***Syringa yunnanensis* Franch.**

China.

Bignoniaceæ

***Tabebuia rosea* DC.**

Mexico.

APPENDIX IV—*contd.*

Passifloraceæ

Tacsonia manicata Juss.
Peru.

Tacsonia van-volxemii Hook.
New Grenada.

Magnoliaceæ

Talauma Hodgsoni H. f. & T.
Forests of the Sikkim Himalaya and of the Khasia Hills, 4,000 to 5,000 ft.
One of the most stately trees of the district, bearing large dark-green glossy leaves and terminal flowers. The heartwood is black and used for Khukri-handles.
N. "Bhalu Kath".

Pinaceæ

Taxodium distichum Rich.
Deciduous Cypress characterised by aerial projecting *knee* roots (*Cypress knees*). Supposed to be aerating organs.
United States.

Taxodium mucronatum Tenore. — **T. distichum** var. *murronatum*.
Mexico.

Taxaceæ

Taxus baccata Linn.
Temperate Himalaya, 6,000 to 11,000 ft. from Afghanistan to Bhutan; Khasia Hills, 5,000 ft.; Upper Burma; North and Temperate Eastern Asia; Europe; North Africa; North America. English "Yew". There are some fine specimens to the West of Darjeeling.

Bignoniaceæ

Tecoma radicans Juss.
North America

Acanthaceæ

Thunbergia coccinea Wall.
Himalaya, 2,000 to 7,000 ft.; Kumaon to Bhutan, Assam; Khasia Hills; Tenasserim
N. "Lek-Rato-Phul, Kanesi" L. "Chontelebrik"
A large climber rarely common in the district. Its long pendant racemes of orange red flowers are very showy, but does not set seed freely.

Thunbergia grandiflora Roxb.
Bengal, 0 to 4,000 ft.; from Bihar and Sikkim to Assam, Manipur and Chittagong. Northern Burma
N. "Kanesi". L. "Chontelebrik". A strong growing climber handsome when in flower
Sikkim 4,000 to 7,000 ft.

Thunbergia lutea T. And.
Himalaya.

Pinaceæ

Thuya dolabrata Linn.
Japan.
This species has a contorted form and dark green foliage.
Thuya gigantea Nutt. var. *Lobbii*. = **T. plicata** D. Don.
North America.
Introduced 1900.

Thuya japonica Maxim.
Japan.

Thuya occidentalis Linn.
Canada and North Eastern States of North America and mountains of North Carolina.
The "American Arborvitæ".

Thuya orientalis Linn.
This species grows very well in Darjeeling. In winter the foliage turns quite brown in colour.

Thuya orientalis Linn var. *aurea*.
China and Japan.

Thuya orientalis Linn var. *elegantissima*.
China.

Thuya orientalis Linn var. *compacta*.

Thuya orientalis var. *Lobbii*.

Thuya orientalis Linn. var. *amreo variegata*.

Gramineæ

Thysanotlana Agrostis Nees. — **T. latifolia** (Roxb.) Honda.
Subtropical Himalaya, Kumaon Eastward to Khasia Hills 4,000-5,000 ft., Bihar and Parasnath, Deccan, Burma, Nicobar Isls., Penang Eastward, New Guinea.
N. "Umliso".
The flowering stem is used for brooms

Melastomaceæ

Tibouchina semidecandra Cogn.
Brazil. A pretty shrub. Grows and flowers well in Darjeeling. Its deep violet fairly large open flowers hanging freely from the ends of branches add much to the beauty of the garden when in full bloom in October

Tiliaceæ

Tilia europæa Linn
Europe; Caucasus.
The English "Lime tree". Is subject to attacks by "borers".

Leguminosæ

Tipuana speciosa Benth
South America.
"Tipa."

Palmeæ

Trachycarpus excelsa H. Wendl.
Upper Burma, Yunnan; China and Japan.
This palm grows well, and flowers and fruits freely.

Trachycarpus Fortunei H. Wendl

Trachycarpus Martianus H. Wendl.
Temperate Himalaya, 6,000 to 8,000 ft., from Nepal Eastward Khasia Hills 4,000 to 5,000 ft.; Manipore; Burma 4,000 to 6,500 ft.
L. "Talarlop".
This palm, indigenous in the neighbourhood at elevations of 8,000 ft., but found only in scattered localities, thrives well in Darjeeling where it has been extensively planted; it bears very large crops of fruit.

APPENDIX IV—*contd.*

Araliaceæ

Trevesia palmata Vis.

From Nepal and Sikkim and Pegu, 1,000 to 5,000 ft.
N. "Phutta", "Suntong kung".
The leaves are used as fodder for cattle.

Cucurbitaceæ

Trichosanthes palmata Roxb. — **T. bracteata** Voigt.

India, Malaya.

Myrtaceæ

Tristania laurina R. Br.

Australia.

Pinaceæ

Tsuga Brunoniana Carr.

Temperate Himalaya, Kumaon to Bhutan, 8,000 to 10,500 ft.
This species grows and cones well.

Sapindaceæ

Turpinia nepalensis Wall. = **T. pomifera** DC.

Tropical Asia.

Leguminosæ

Ulex europæus Linn.

Western Europe.

The English "Furze" "Gorse" or "Whin" is almost always in flower and ripens seed here. Care is required in transplanting the seedlings or the seed may be sown at site.

Ulmaceæ

Ulmus campestris L.

Europe.

The "Elm".

Ulmus lancifolia Roxb

Subtropical Himalaya; Kumaon 1,000 to 5,000 ft., Sikkim 1,000 to 4,500 ft.; Khasia Hills 1,000 to 3,000 ft.; Chittagong; Pegu and Martaban.

Vacciniaceæ

Vaccinium Dunalianum Wight.

Sikkim, Bhutan and Khasia Hills, 3,000 to 8,000 ft.
A large shrub.

Vaccinium fragile Franch.

Yunnan.

Vaccinium glauco-album Hk. f. ex C. B. Cl.

Sikkim Himalaya, 9,000 to 10,000 ft.; Bhutan, 7,500 ft.
A very pretty species with pink tinged flowers.

Vaccinium nummularia Hk f. & T.

Sikkim to Bhutan, 8,000 to 10,000 ft.
A small epiphytic shrub.

Vaccinium serratum Wight.

Sikkim, Bhutan and Khasia Hills, 3,000 to 7,000 ft.

Compositæ

Vernonia volkameriæfolia DC.

Sikkim Himalaya, Khasia and Jaintia Hills, 2,000 to 5,000 ft.; Mishmi Hills, Burma.

Scrophulariaceæ

Veronica Imperialis Hort. ex vilmorin.

Bears in autumn purple red flowers: propagated from cuttings of the half ripened wood late in spring.

Veronica salifolia Forst.

Bears in the rains light blue flowers: propagated from cuttings inserted in spring.

Caprifoliaceæ

Viburnum Carlesii Hemsley.

Corea.

Viburnum Colebrookianum Wall.

Subtropical Himalaya, 1,000 to 5,000 ft.; Sikkim and Bhutan, Assam and Khasia Hills, 0 to 4,000 ft.

Viburnum cordifolium Wall

Temperate Himalaya 9,000 to 12,000 ft., Kumaon and Bhutan.

A shrub or small tree common in upper Sikkim, handsome when in flower.

Viburnum coriaceum Bl.

Temperate Himalaya, 4,000 to 8,000 ft., from Kumaon to Bhutan and Khasia Hills, 3,000 to 5,000 ft., North Burma; Java

N. "Ghoxa khari".

A shrub common round Darjeeling.

Viburnum erubescens Wall.

Himalaya, at 3,000 to 10,000 ft., Kumaon to Bhutan, Deccan Hills, Ceylon.

Viburnum furcatum Bl.

China and Japan

This shrub flourishes and flowers well.

Viburnum stellulatum Wall.

Temperate Himalaya, 6,000 to 11,000 ft.; Kashmir to Sikkim

A handsome flowering shrub.

N "Asaray"; L. "Namlang kung" or "Pher kung".

A small tree common round Darjeeling, pretty when in flower or unripe fruit.

Verbenaceæ

Vitex littoralis A. Cuun.

New Zealand.

Urticaceæ

Villebrunea integrifolia Gaud.

Tropical Sikkim Himalaya; Assam and Khasia Hills, Eastern and Western Peninsula.

N. "Lippey"; L. "Taphitki".

The fibre of the bark is used.

Ampelidaceæ

Vitis capriolata G. Don. — **Tetrastigma serrulatum** Planch.

Temperate Himalaya, 4,000 to 8,000 ft.; Khasia Hills, 4,000 to 6,000 ft.; Chittagong.

A pretty climber, common round Darjeeling, found climbing on trunks of trees on rocks, etc.

Fruit not edible.

APPENDIX IV—*concl'd.*

Vitis discolor Dals. = **Cissus discolor** Bl.

Tropical Sikkim, Himalaya, the Khasia Hills and Sylhet, up to 3,000 ft., Chittagong, Concan; Pegu and Tennaserim; Java.

A slender climber with very pretty foliage.

Vitis Doniana Munson.

North-West Texas.

Vitis glauca W. & A. = **Cissus glauca** Roxb.

Western Peninsula from the Concan southwards.

Vitis hederacea Ehrh.

North America.

The "Virginian Creeper" does not take here the vivid autumn coloration associated with that plant in Europe.

Vitis heterophylla Thunb. var. *amurensis*.

Japan.

Vitis heterophylla Thunb. var. *Delavayi*

Japan.

Vitis inconstans Miq.

Japan.

Vitis vinifera Linn. var. *Black Alicante*.

Asia Minor.

The cultivated vine is grown by residents to some extent. The quality of the crop depends on the locality and aspect in which it is grown, and the weather in August and September.

Vitis vinifera Linn. var. *Vern's Black Muscat*.

Asia Minor.

Scrophulariaceæ

Wightia gigantea Wall.

Central and Western Himalaya, Nepal, Sikkim, Bhutan, Java, 3,000 to 7,000 ft.

L. "Jeru kung".

A large epiphytic tree found growing on other trees with its own trunk closely adpressed to that of its host, and clasping the latter by means of horizontal aerial roots, or at times with its own roots swinging free like large cables. The specimen in the garden is evidently self-set and grows on a large old chestnut tree.

Leguminosæ

Wistaria chinensis DC.

China.

Flowers in April and May. Propagated by cuttings when leafless.

Wistaria chinensis DC. var. *alba*

A white flowered variety of the above.

Liliaceæ

Yucca filamentosa Linn.

North America.

Yucca gloriosa Linn.

United States.

Flowers annually in April-May.

Yucca gloriosa Linn. var. *superba*.

A variety with larger flowers than the type.

All the above Yuccas grow and flower well, but do not set seed.

Rutaceæ

Zanthoxylum acanthopodium DC.

Hot valleys of the Subtropical Himalaya, Kumaon to Sikkim ascending to 7,000 ft.; Khasia Hills, 4,000 to 6,000 ft.

N. "Bokay Timbur"; L. "Mongru".

Zanthoxylum alatum Roxb.

Subtropical Himalaya, Jammu to Bhutan 6,000 ft., Khasia Hills.

Zanthoxylum oxyphyllum Edgew.

Temperate and Subtropical Himalaya from Garhwal 4,000 to 8,000 ft., to Sikkim 6,000 to 9,000 ft.; Bhutan, Khasia Hills, 4,000 to 6,000 ft.

N. "Bhamsay Timbur" or "Laharay Timbur".

Zanthoxylum piperitum DC.

China and Japan.

CENSUS TRACTS, VILLAGE SAMPLE POPULATION AND DISPLACED PERSONS

Preparatory to the sorting and tabulation of census information, rural and urban areas of a district were grouped into Census Tracts on the basis of instructions issued by the Registrar General of India. These tracts had to have the approval of the Registrar General of India before sorting and tabulation began. A list of rural and urban tracts of Darjeeling grouping rural thanas and urban areas is given below. In the body of the statistics they are referred to by their code number.

RURAL

R—92 Darjeeling (excluding town) Jore Bungalow Pulbazar Sukhiapokri Rangli Rangliot	R—93 Kurseong (excluding town) Mirik	R—95 Kalimpong (excluding town) Garubathan
	R—94 Siliguri (excluding town) Kharibari Phansidewa	

URBAN

U—37 Darjeeling Kurseong Kalimpong	U—38 Siliguri
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A 'village' in the book is identical with a cadastrally surveyed 'mauza' bearing a jurisdiction list number.

In several tables the term 'Sample Population' has been used. This sample was drawn according to the following instruction of the Registrar General of India. Enumeration was done on pads of 100 slips each, a slip containing the record of an individual :—

“Break each pad and stack the slips of the pad; and 'cut' the stack as in a card game. Place the lower portion above the upper portion and then deal the slips into the pigeon holes. You should deal the slips into pigeon holes in the order of 1, 2, 3, 4, 5, 6, 7, 8 and 9 successively. All the time, you should watch the slips of 'Displaced Persons'. If you come across any slip of a Displaced Person deal it in the pigeon hole of 'Displaced Persons'.”

Hence it will be seen that the sample is not a sample of the total population but of the latter excluding the 'Displaced Population'.

The check factors for the sample population are :—

1,000 S/G Rural Total = $34,696,000/311,510 = 111.38$

1,000 S/G Urban Total = $8,362,000/74,954 = 111.56$

1,000 S/G District Total = $43,058,000/386,464 = 111.42$

A 'Displaced Person' was defined by the Registrar General of India as follows :—

“A 'Displaced Person' means any person who has entered India having left or being compelled to leave his or her home in Western Pakistan on or after the 1st March 1947 or his/her home in Eastern Pakistan on or after the 15th October 1946 on account of civil disturbances or the fear of such disturbances or on account of the setting up of the two dominions of India and Pakistan.”

CENSUS TRACTS, VILLAGE SAMPLE POPULATION AND DISPLACED PERSONS *concl'd.*

The population is divided into two broad livelihood categories, *viz.*, the Agricultural Classes and the Non-Agricultural Classes. Each category is divided into four classes as below :—

Agricultural Classes —

- I—Cultivators of land wholly or mainly owned and their dependants
- II—Cultivators of land wholly or mainly unowned and their dependants
- III—Cultivating labourers and their dependants
- IV—Non-cultivating owners of land; Agricultural rent receivers and their dependants

Non-Agricultural Classes—

Persons (including dependants) who derive their principal means of livelihood from—

- V—Production other than cultivation
- VI—Commerce
- VII—Transport
- VIII—Other services and miscellaneous sources

A—GENERAL POPULATION TABLES

TABLE 1.1—AI—AREA, HOUSES AND POPULATION

District, Subdivision, Police Station or Township	Area in sq. miles	Villages	Towns	Occupied Houses			Population								
				Total	Rural	Urban	Persons			Males			Females		
							Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DARJEELING DISTRICT	(a)1,159.7 (b)1,199.7	605	4	93,386	74,302	19,084	445,260	350,779	94,481	239,018	184,106	54,912	206,232	166,673	39,569
<i>Sadar Subdivision</i>	361.2	29	1	33,775	26,593	7,182	169,631	136,026	33,605	58,146	69,732	18,414	81,485	66,294	15,191
1 Darjeeling	40.4	23	1	13,217	6,035	7,182	63,171	29,566	33,605	33,737	15,323	18,414	29,434	14,243	15,191
<i>Darjeeling</i>	4.1	..	..	..	..	7,182	..	..	33,605	..	..	18,414	..	..	15,191
2 Jore Bungalow	56.4	28	..	5,217	5,217	..	28,944	28,944	..	14,941	14,941	..	14,003	14,003	..
3 Pubbazar	53.0	5	..	5,281	5,281	..	26,929	26,929	..	13,915	13,915	..	13,014	13,014	..
4 Sukhiapokri	92.6	18	..	3,865	3,865	..	19,258	19,258	..	9,812	9,812	..	9,446	9,446	..
5 Rangli Rangliot	118.8	25	..	6,195	6,195	..	31,329	31,329	..	15,741	15,741	..	15,588	15,588	..
<i>Kurseong Subdivision</i>	164.2	60	1	13,941	11,522	2,419	65,713	53,994	11,719	34,176	27,789	6,387	31,537	26,205	5,332
6 Kurseong	126.6	47	1	10,749	8,330	2,419	49,577	37,858	11,719	25,972	19,585	6,387	23,605	18,273	5,332
<i>Kurseong</i>	1.5	..	..	..	..	2,419	..	..	11,719	..	..	6,387	..	..	5,332
7 Mirik	37.6	13	..	3,192	3,192	..	16,136	16,136	..	8,204	8,204	..	7,932	7,932	..
<i>Siliguri Subdivision</i>	266.4	340	1	27,365	21,126	6,239	116,455	81,095	32,430	67,476	46,556	20,903	49,016	37,439	11,577
8 Siliguri	124.4	150	1	15,917	9,678	6,239	68,280	35,800	32,480	40,859	19,956	20,903	27,421	15,844	11,577
<i>Siliguri</i>	3.6	..	..	..	..	6,239	..	..	32,480	..	..	20,903	..	..	11,577
9 Kharibari	78.4	108	..	5,869	5,869	..	24,876	24,876	..	13,953	13,953	..	10,923	10,923	..
10 Phansidewa	63.6	82	..	5,579	5,579	..	23,319	23,319	..	12,647	12,647	..	10,672	10,672	..
<i>Kalimpong Subdivision</i>	407.9	106	1	18,397	15,061	3,244	93,441	79,764	16,677	49,257	40,029	9,228	44,204	36,735	7,469
11 Kalimpong	235.4	77	1	14,782	11,538	3,244	76,463	59,786	16,677	40,319	31,111	9,208	36,144	28,675	7,469
<i>Kalimpong</i>	3.6	..	..	..	..	3,244	..	..	16,677	..	..	9,208	..	..	7,469
12 Garubathan	172.5	29	..	3,523	3,523	..	16,978	16,978	..	8,918	8,918	..	8,060	8,060	..

(a) Area provided by Surveyor General, India, through Registrar General, India. The total of areas of subdivisions will differ from this figure.

(b) Area derived from Jurisdiction Lists and confirmed by the Director of Land Records and Surveys, West Bengal.

TABLE 1.2—AII—VARIATION IN POPULATION DURING FIFTY YEARS—1901-1951

District	Persons	Variation	Net variation 1901-1951	Males	Variation	Females	Variation
1	2	3	4	5	6	7	8
DARJEELING DISTRICT							
1901	249,117	..	..	133,005	..	116,112	..
1911	265,550	+ 16,433	..	142,094	+ 9,089	123,456	+ 7,344
1921	282,748	+ 17,198	..	149,094	+ 7,000	133,654	+ 10,198
1931	319,635	+ 36,887	..	170,131	+ 21,037	149,504	+ 15,850
1941	376,369	+ 56,734	..	199,891	+ 29,760	176,478	+ 26,974
1951	445,260	+ 68,891	+ 196,143	239,018	+ 39,127	206,242	+ 29,764

TABLE 1.3—AIV—TOWNS CLASSIFIED BY POPULATION WITH VARIATIONS SINCE 1901

(NOTE—All towns are municipalities unless otherwise indicated. Towns in the Census of 1951 have been classified as follows : Class I—100,000 and over. Class II—50,000 to 100,000. Class III—20,000 to 50,000. Class IV—10,000 to 20,000. Class V—5,000 to 10,000. Class VI—under 5,000.)

District, Town and Class of Town	Persons	Variation	Net variation 1901-1951	Males	Variation	Females	Variation
1	2	3	4	5	6	7	8
DARJEELING DISTRICT							
Darjeeling							
Class III							
1901	16,924	..	..	10,241	..	6,683	..
1911	19,005	+ 2,081	..	11,631	+ 1,390	7,374	+ 691
1921	22,258	+ 3,253	..	12,877	+ 1,246	9,381	+ 2,007
1931	21,185	- 1,073	..	12,101	- 776	8,084	- 297
1941	27,222	+ 6,037	..	15,203	+ 3,102	12,019	+ 2,935
1951	33,605	+ 6,383	+ 16,681	18,414	+ 3,211	15,191	+ 3,172
Siliguri							
Class III							
1901	..	..	..	..	..	..	..
1911	..	..	..	..	..	..	..
1921	..	..	..	..	..	..	..
1931	6,067	..	..	4,182	..	1,885	..
1941	10,487	+ 4,420	..	7,121	+ 2,939	3,366	+ 1,481
1951	32,480	+ 21,993	..	20,903	+ 13,782	11,577	+ 8,211
Kalimpong							
Class IV							
1901	..	..	..	..	..	..	..
1911	..	..	..	..	..	..	..
1921	..	..	..	..	..	..	..
1931	8,776	..	..	4,870	..	3,906	..
1941	11,961	+ 3,185	..	6,664	+ 1,794	5,297	+ 1,391
1951	16,077	+ 4,716	..	9,208	+ 2,544	7,469	+ 2,172
Kurseong							
Class IV							
1901	4,489	..	..	2,418	..	2,051	..
1911	5,574	+ 1,105	..	3,126	+ 708	2,448	+ 397
1921	6,445	+ 871	..	3,275	+ 149	3,170	+ 722
1931	7,451	+ 1,006	..	4,014	+ 739	3,437	+ 267
1941	8,497	+ 1,046	..	4,509	+ 495	3,988	+ 551
1951	11,719	+ 3,222	+ 7,250	6,387	+ 1,878	5,332	+ 1,344

TABLE 1.4—AIII—TOWNS AND VILLAGES CLASSIFIED BY POPULATION

Towns and villages with less than 2,000 population

District, Subdivision and Police Station	Total number of inhabited towns and villages	Total population												Total						Less than 500						500—1,000			
		Persons			Males			Females			Number			Males			Females			Number			Males			Females			
		3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1																													
DARJEELING DISTRICT	609	445,260	239,018	206,242	578	124,564	110,328	423	47,082	39,143	92	34,723	30,837																
<i>Sadar Subdivision</i>	<i>100</i>	<i>169,631</i>	<i>88,146</i>	<i>81,485</i>	<i>86</i>	<i>33,593</i>	<i>32,147</i>	<i>27</i>	<i>4,309</i>	<i>4,011</i>	<i>32</i>	<i>12,475</i>	<i>11,590</i>																
1 Darjeeling	24	63,171	33,737	29,434	19	7,804	7,744	5	964	921	8	3,019	3,023																
2 Jore Bungalow	28	28,944	14,941	14,003	26	9,000	8,333	11	1,703	1,531	7	2,649	2,240																
3 Pulbazar	5	26,929	13,915	13,014	3	1,075	1,008	1	245	246	2	830	762																
4 Sukhiapokri	18	19,258	9,812	9,446	16	7,685	7,257	3	474	425	5	2,280	2,034																
5 Rangli Rangliot	25	31,329	15,741	15,588	22	8,029	7,805	7	923	888	10	3,697	3,531																
<i>Kurseong Subdivision</i>	<i>61</i>	<i>65,713</i>	<i>34,176</i>	<i>31,537</i>	<i>55</i>	<i>17,344</i>	<i>16,530</i>	<i>28</i>	<i>3,283</i>	<i>3,039</i>	<i>15</i>	<i>5,129</i>	<i>4,873</i>																
6 Kurseong	48	49,577	25,972	23,605	43	11,060	10,446	25	3,018	2,774	13	4,342	4,148																
7 Mirik	13	16,136	8,204	7,932	12	6,284	6,084	3	265	265	2	787	725																
<i>Siliguri Subdivision</i>	<i>341</i>	<i>116,475</i>	<i>67,459</i>	<i>49,016</i>	<i>340</i>	<i>46,556</i>	<i>37,439</i>	<i>313</i>	<i>35,167</i>	<i>28,779</i>	<i>24</i>	<i>8,955</i>	<i>7,097</i>																
8 Siliguri	151	68,280	40,859	27,421	150	19,956	15,844	137	14,570	11,584	11	4,051	3,201																
9 Kharibari	108	24,876	13,953	10,923	108	13,953	10,923	101	10,908	8,911	6	1,946	1,508																
10 Phansidewa	82	23,319	12,647	10,672	82	12,647	10,672	75	9,689	8,284	7	2,958	2,388																
<i>Kalimpong Subdivision</i>	<i>107</i>	<i>93,441</i>	<i>49,237</i>	<i>44,204</i>	<i>97</i>	<i>27,071</i>	<i>24,212</i>	<i>55</i>	<i>4,323</i>	<i>3,314</i>	<i>21</i>	<i>8,164</i>	<i>7,277</i>																
11 Kalimpong	78	76,463	40,319	36,144	70	20,712	18,564	40	3,201	2,460	13	5,386	4,740																
12 Garubathan	29	16,978	8,918	8,060	27	6,359	5,648	15	1,122	864	8	2,778	2,537																

TABLE--AIII--TOWNS AND VILLAGES CLASSIFIED BY POPULATION--contd.

District, Subdivision and Police Station	Towns and villages with less than 2,000 population				Towns and villages with a population of 2,000—10,000									
	1,000—2,000				Total					2,000—5,000				
	Number	Males	Females		Number	Males	Females	Number		Number	Males	Females	Number	
	15	16	17		18	19	20	21		22	23	24	25	26
DARJEELING DISTRICT	63	42,759	40,348		26	48,655	46,333	20		28,128	26,464	6	20,527	19,889
<i>Sadar Subdivision</i>	27	16,809	16,546		12	25,252	24,135	5		11,355	10,457	4	13,867	13,678
1 Darjeeling	6	3,821	3,800		4	7,519	6,499	3		4,969	3,918	1	2,550	2,581
2 Jore Bungalow	8	4,648	4,562		2	5,941	5,670	1		1,329	1,193	1	4,612	4,477
3 Pulbazar	..	..	..		1	1,953	1,994	1		1,953	1,994	..	..	..
4 Sukhiapokri	8	4,931	4,798		2	2,127	2,189	2		2,127	2,189	..	..	..
5 Rangli Rangliot	5	3,409	3,386		3	7,712	7,783	1		1,007	1,163	2	6,705	6,620
<i>Kurseong Subdivision</i>	12	8,932	8,618		5	10,445	9,675	4		6,602	6,244	1	3,843	3,431
6 Kurseong	5	3,700	3,524		4	8,525	7,827	3		4,982	4,996	1	3,843	3,431
7 Mirik	7	5,232	5,094		1	1,920	1,848	1		1,920	1,848	..	..	..
<i>Siliguri Subdivision</i>	3	2,434	1,563		..	..	..	..		..	..	..	..	..
8 Siliguri	2	1,335	1,059		..	..	..	..		..	..	..	..	..
9 Kharibari	1	1,099	504		..	..	..	..		..	..	..	..	..
10 Phansidewa	..	..	..		..	..	..	..		..	..	..	..	..
<i>Kalimpong Subdivision</i>	21	14,584	13,621		9	12,958	12,523	8		10,141	9,763	1	2,817	2,760
11 Kalimpong	17	12,125	11,364		7	10,399	10,111	6		7,582	7,351	1	2,817	2,760
12 Garubathan	4	2,459	2,257		2	2,559	2,412	2		2,559	2,412	..	..	..

TABLE 1.4—AIII—TOWNS AND VILLAGES CLASSIFIED BY POPULATION—*concd.*

District, Subdivision and Police Station	Towns and villages with a population of 10,000 and above															
	Total			10,000—20,000			20,000—50,000			50,000—100,000			100,000 and above			
	Number	Males	Females	Number	Males	Females	Number	Males	Females	Number	Males	Females	Number	Males	Females	
27	28	29	30	31	32	33	34	35	36	37	38	39	40	41		
DARJEELING DISTRICT	5	65,799	49,581	2	15,595	12,801	3	50,204	36,780	..	..	..	..	..	..
<i>Sadar Subdivision</i>	2	29,301	25,203	..	..	..	2	29,301	25,203	..	..	..	..	..	..
1 Darjeeling	1	18,414	15,191	..	..	..	1	18,414	15,191	..	..	..	..	..	..
2 Jore Bungalow	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
3 Pulbazar	1	10,887	10,012	..	..	..	1	10,887	10,012	..	..	..	..	..	..
4 Sukhiapokri	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
5 Rangli Rangliot	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Kurseong Subdivision</i>	1	6,387	5,332	1	6,387	5,332	..	..	..	..	..	..	..	..	..
6 Kurseong	1	6,387	5,332	1	6,387	5,332	..	..	..	..	..	..	..	..	..
7 Mirik	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Siliguri Subdivision</i>	1	20,903	11,577	..	..	..	1	20,903	11,577	..	..	..	..	..	..
8 Siliguri	1	20,903	11,577	..	..	..	1	20,903	11,577	..	..	..	..	..	..
9 Kharibari	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
10 Phansidewa	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>Kalimpong Subdivision</i>	1	9,208	7,469	1	9,208	7,469	..	..	..	..	..	..	..	..	..
11 Kalimpong	1	9,208	7,469	1	9,208	7,469	..	..	..	..	..	..	..	..	..
12 Garubathan	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE 1.5—PERSONS PER OCCUPIED HOUSE, SEX AND LIVELIHOOD CLASS RATIOS

DARJEELING DISTRICT

Serial No.	Particulars	Total	Rural	Urban
1	Number of persons per occupied house	4.8	4.7	5.0
2	Number of females per 1,000 males	863	905	721
3	Percentage of rural and urban to total population	100.0	78.8	21.2
4	Percentage of Agricultural Livelihoods to All Livelihoods	32.1	40.0	2.7
5	Percentage of Cultivators of Land owned to all Agricultural Classes	65.9	65.7	72.2
6	Percentage of Cultivators of Land unowned to all Agricultural Classes	28.2	28.4	16.5
7	Percentage of Cultivating Labourers to all Agricultural Classes	5.5	5.6	1.9
8	Percentage of Landlords and rent receivers to all Agricultural Classes	0.4	0.3	9.4
9	Percentage of Non-Agricultural Livelihoods to all Livelihoods	67.9	60.0	97.3
10	Percentage of Production other than cultivation to all Non-Agricultural Livelihoods	59.5	79.6	13.4
11	Percentage of Commerce to all Non-Agricultural Livelihoods	10.0	4.0	23.7
12	Percentage of Transport to all Non-Agricultural Livelihoods	4.6	2.7	9.2
13	Percentage of Other services and miscellaneous sources to all Non-Agricultural Livelihoods	25.9	13.7	53.7

TABLE 1.6—APPROXIMATE POPULATION OF CENSUS CHARGES

(Populations given below are provisional, being those reported immediately upon the conclusion of Census enumeration in 1951)

For comparison with finally prepared figures the final population of a thana is shown against its provisional population)

Subdivision and Thana	Charge number	Persons	Males	Females	Final population of Town in Thana	Provisional population of Thana	Final population of Thana
1	2	3	4	5	6	7	8
<i>Sadar Subdivision</i>							
Darjeeling	1 Khasmahal Area	884	458	426	..	..	..
	2 Tea Estates	24,535	12,297	12,238	..	..	..
	4 Private Estates and D. I. Fund Areas, etc. . . .	1,053	551	502	..	..	..
	5 Forest Areas	224	129	95	..	..	..
	6 Lebong Cantonment Areas	999	655	344	..	..	..
	7 Jalapahur Cantonment Areas	1,713	1,008	705	..	..	..
	3 Darjeeling Municipality . . . .	..	..	..	33,605	..	..
	Total	29,408	15,098	14,310	33,605	63,042	63,171
Jore Bungalow	8 Khasmahal Areas	2,094	1,104	990	..	..	..
	9 Tea Estates	22,147	11,186	10,961	..	..	..
	10 C. R. R. Land, etc. . . .	2,889	1,651	1,238	..	..	..
	11 Forest Areas	1,844	965	879	..	..	..
	12 Municipal Areas (The Figures are included in charge No. 3)						
	Total	28,974	14,906	14,068	..	28,974	28,944
Pulbazar	13 Khasmahal Areas	14,752	7,662	7,090	..	..	..
	14 Tea Estates	3,955	1,925	2,030	..	..	..
	15 Private Estates and D. I. Fund Areas, etc. . . .	7,375	3,854	3,521	..	..	..
	16 Forest Areas	947	500	447	..	..	..
	Total	27,029	13,941	13,088	..	27,029	26,929
Sukhiapokri	17 Khasmahal Areas	1,013	550	463	..	..	..
	18 Tea Estates	14,059	6,987	7,072	..	..	..
	19 Forest Areas	1,094	579	515	..	..	..
	20 D. I. Fund and Private Estates, etc. . . .	3,123	1,743	1,380	..	..	..
	Total	19,289	9,859	9,430	..	19,289	19,258
Rangli Rangliot	21 Cinchona Plantation	5,943	3,096	2,847	..	..	..
	22 Khasmahal Areas	9,938	5,054	4,884	..	..	..
	23 Tea Estates	14,608	7,237	7,371	..	..	..
	24 Forest Areas	752	393	359	..	..	..
	Total	31,241	15,780	15,461	..	31,241	31,329
<i>Kurseong Subdivision</i>							
Kurseong	53 All Tea Gardens	19,690	9,987	9,703	..	..	..
	54 All Forest Areas	1,150	615	535	..	..	..
	56 C. R. R. Land, etc. . . .	11,198	5,846	5,352	..	..	..
	57 Khasmahal Bustees latoly in Govt. Cinchona Plantation except Cin. Plantation	3,860	2,060	1,800	..	..	..
	58 Mungpoo Cinchona Plantation	1,872	971	901	..	..	..
	59 Other Units (J. L. 19, 21, 23-26, 30 & 33-35)	62	36	26	..	..	..
	55 Kurseong Municipality . . . .	..	..	..	11,719	..	..
	Total	37,832	19,515	18,317	11,719	49,411	49,577
Mirik	60 All Tea Gardens	13,577	6,941	6,636	..	..	..
	61 Forest Areas	530	264	266	..	..	..
	62 Khasmahal Bustees	2,005	1,012	993	..	..	..
	Total	16,112	8,217	7,895	..	16,112	16,136

TABLE 1.6 —APPROXIMATE POPULATION OF CENSUS CHARGES—*concl'd.*

Subdivision and Thana	Charge number	Persons	Males	Females	Final population of Town in Thana	Provisional population of Thana	Final population of Thana
1	2	3	4	5	6	7	8
<i>Siliguri Subdivision</i>							
Siliguri	26 Rural Areas excluding Tea Garden and Forests	18,564	10,367	8,197	.	..	..
	27 Forest Areas . . .	1,214	756	458	..	..	..
	28 Tea Garden Areas under T. P. A.	7,286	4,030	3,256	..	..	..
	29 Tea Garden Areas under T. I. P. A.	8,479	4,603	3,876	..	..	..
	25 <i>Siliguri Municipality</i>	.	..	..	32,480	..	..
	Total .	35,543	19,756	15,787	32,480	67,792	68,280
Kharibari	30 Rural Areas excluding T. E. and Forests	17,784	10,098	7,686	..	..	..
	31 Forest Areas . . .	90	51	39	..	..	..
	32 Tea Gardens Areas under T.P.A.	4,987	2,703	2,284	..	..	..
	33 Tea Gardens Areas under T. I. P. A.	3,219	1,746	1,473	..	..	..
	Total .	26,080	14,598	11,482	..	26,080	24,876
Phansidowa	34 Rural Areas excluding T. E. and Forests	15,863	8,482	7,381	..	..	..
	35 Forest Areas . . .	..	..	..	..	..	..
	36 Tea Gardens Areas under T. P. A.	4,573	2,495	2,078	..	..	..
	37 Tea Gardens Areas under T. I. P. A.	2,655	1,217	1,438	..	..	..
	Total .	23,091	12,194	10,897	..	23,091	23,319
<i>Kalimpong Subdivision</i>							
Kalimpong	39 St. A. C. Homes . .	1,673	860	813	..	..	..
	40 Forest Areas . . .	3,197	2,008	1,189	..	..	..
	41 Munsong Cinchona Plantation	5,592	2,834	2,758	..	..	..
	42 Toosta-Area . . .	2,068	1,316	752	..	..	..
	43 West Khasmahal . .	12,860	6,451	6,409	..	..	..
	44 North Khasmahal . .	10,601	5,458	5,143	..	..	..
	45 Central Khasmahal . .	9,989	5,093	4,896	..	..	..
	46 Relli Khasmahal . .	13,815	6,992	6,823	..	..	..
	38 <i>Kalimpong Municipality</i>	..	..	..	16,677	..	..
	Total .	59,795	31,012	28,783	16,677	76,357	76,463
	47 North Khasmahal [<i>The figures are included in charge No. 38 (Kalimpong Municipality)</i>]						
Garubathan	48 East Khasmahal . .	1,852	975	877	..	..	..
	49 Moorte Area . . .	3,282	1,728	1,554	..	..	..
	50 Rongo Cinchona Plantation	2,671	1,365	1,306	..	..	..
	51 South Khasmahal . .	8,111	4,196	3,915	..	..	..
	52 Forest Areas . . .	1,011	613	398	..	..	..
	Total .	16,927	8,877	8,050	..	16,927	16,978

TABLE 1.7—AV—TOWNS ARRANGED TERRITORIALY WITH POPULATION BY LIVELIHOOD CLASSES

(All Towns are *Municipalities* unless otherwise indicated)

District and Name of Town	Livelihood Classes															
	Non-Agricultural Classes								Agricultural Classes							
	Persons (including dependants) who derive their principal means of livelihood from								IV—Non-cultivating owners of land : Agricultural labourers and their dependants							
	Population		V—Production other than cultivation		VI—Commerce		VII—Transport		VIII—Other services and miscellaneous sources		IX—Non-cultivating owners of land : Agricultural labourers and their dependants		X—Non-cultivating owners of land : Agricultural labourers and their dependants		XI—Cultivating owners of land : Agricultural labourers and their dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
DARJEELING DISTRICT																
<i>(Urban Population)</i>																
1 Darjeeling	94,481	54,912	39,569	7,343	4,972	12,978	3,812	5,048	3,417	28,219	21,136	126	113	1,198	1,119	479
2 Siliguri	33,605	18,414	15,191	1,902	1,340	3,374	2,582	946	850	11,647	9,890	53	50	492	479	293
3 Kalimpong	32,480	20,903	11,577	2,889	1,480	6,500	4,073	2,985	1,589	8,092	4,090	61	..	376	293	310
4 Kurseong	16,677	9,208	7,469	1,573	1,305	2,102	1,417	304	245	4,918	4,192	..	..	311	310	37
	11,719	6,387	5,332	979	847	1,002	740	813	733	3,562	2,964	12	11	19	19	37

TABLE 1.8—E—SUMMARY OF LIVELIHOOD CLASSES AND VARIATIONS IN POPULATION

District, Subdivision, Police Station or Township	Area in sq. miles	Population						Percentage Variation		Density		Livelihood Classes					
		1951			1941			1941 to 1951	1931 to 1941	1951	1941	I—Cultivators of land wholly or mainly owned and their dependants			II—Cultivators of land wholly or mainly unowned and their dependants		
		Persons	Males	Females	Persons	Males	Females					Males	Females	Males	Females		
1	2	3	4	5	6	7	8	9	10	11	12	13	14				
DARJEELING DISTRICT	(a) 1,160																
	(b) 1,199.7																
	1,186.9 12.8	445,260 350,779 94,481	239,018 184,106 54,912	206,242 166,673 39,569	376,369 318,202 58,167	+18.3 +10.2 +64.4	+17.7 +15.2 +33.8	371 296 7,381	316 270 4,283	48,554 47,624 930	45,525 44,609 916	21,146 20,915 231	19,084 18,892 192				
Sadar Subdivision	361.2 357.1 4.08	169,631 136,026 33,605	88,146 69,732 18,414	81,485 66,294 15,191	147,327 120,105 27,222	+15.1 +13.3 +23.4	+23.6 +22.6 +28.5	470 381 8,237	408 337 5,578	14,938 14,463 475	14,297 13,828 469	3,129 3,124 5	3,070 3,062 8				
1 Darjeeling	40.4 36.3 4.08	63,171 29,566 33,605	33,737 15,323 18,414	29,434 14,243 15,191	48,733 21,511 27,222	+29.6 +37.4 +23.4	+10.5 -6.1 +28.5	1,564 814 8,237	1,218 800 5,578	1,013 538 475	1,010 541 469	113 108 5	116 108 8				
<i>Darjeeling</i>	4.08	33,605	18,414	15,191	27,222	+23.4	+28.5	8,237	6,341	475	469	5	8				
2 Jore Bungalow	56.4	28,944	14,941	14,003	32,042	-9.7	+51.9	513	572	1,176	1,114	77	45				
3 Pulbarar	53.0	26,929	13,915	13,014	21,320	+26.3	+18.4	508	402	8,222	7,849	2,206	2,244				
4 Sukhiapokri	92.6	19,258	9,812	9,446	18,217	+5.7	+28.5	208	196	911	822	32	29				
5 Rangli Rangliot	118.8	31,329	15,741	15,588	27,015	+16.0	+23.9	264	227	3,916	3,502	701	636				
Kurseong Subdi- vision	164.2 162.7 1.5	65,713 53,994 11,719	34,176 27,789 6,387	31,537 26,205 5,332	59,986 51,489 8,497	+9.5 -4.9 +37.9	+15.4 +15.6 +14.0	400 332 7,813	364 315 5,665	3,474 3,461 13	3,323 3,288 35	108 102 6	83 81 2				
6 Kurseong	126.6 125.1 1.5	49,577 37,858 11,719	25,972 19,885 6,387	23,605 18,273 5,332	42,930 34,423 8,497	+15.5 +10.0 +37.9	-13.9 +13.8 +14.0	392 303 7,813	338 274 5,665	2,142 2,129 13	1,953 1,918 35	108 102 6	83 81 2				
<i>Kurseong</i>	1.5	11,719	6,387	5,332	8,497	+37.9	+14.0	7,813	5,665	13	35	6	2				

TABLE 1.8—E—SUMMARY OF LIVELIHOOD CLASSES AND VARIATIONS IN POPULATION—contd.

District, Subdivision, Police Station or Township	Area in sq. miles	LIVELIHOOD CLASSES																									
		Agricultural Classes						Non-Agricultural Classes																			
		Persons (including dependants) who derive their principal means of livelihood from						Persons (including dependants) who derive their principal means of livelihood from																			
		III—Cultivating labourers and their dependants						IV—Non-cultivating owners of land, Agri- cultural rent receivers and their dependants						V—Production other than cultivation				VI—Commerce				VII—Transport				VIII—Other services and miscellaneous sources	
Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		
	15	16	17	18	19	20	21	22	23	24	25	26															
DARJEELING DISTRICT																											
Sadar Subdivision	(a) 1,160																										
	(b) 1,199.7	4,239	3,690	327	271	92,958	86,866	18,096	12,142	8,278	5,786	45,420	32,878														
	U	4,202	3,679	201	158	85,615	81,894	5,118	3,330	3,230	2,369	17,201	11,742														
	1,186.9		11	126	7,343	4,972	12,978	8,812	5,048	3,417	28,219	21,136															
	12.8	37																									
1 Darjeeling	361.2	939	829	69	66	43,217	43,072	5,370	3,916	1,422	1,208	19,062	15,027														
	357.1	927	827	16	16	41,315	41,732	1,996	1,334	476	358	7,415	5,137														
	4.08	12	2	53	50	1,902	1,340	3,374	2,582	946	850	11,647	9,890														
2 Jore Bungalow	40.4	28	11	53	50	13,135	12,758	3,863	2,967	990	870	14,542	11,652														
	36.3	16	9	..	..	11,233	11,418	489	385	44	20	2,895	1,762												
	4.08	12	2	53	50	1,902	1,340	3,374	2,582	946	850	11,647	9,890														
<i>Darjeeling</i>																											
3 Pulbazar	4.08	12	2	53	50	1,902	1,340	3,374	2,582	946	850	11,647	9,890														
	56.4	140	139	..	..	11,112	10,886	425	251	168	113	1,843	1,455												
4 Sukhiapokri	53.0	331	251	6	3	2,074	2,081	376	199	10	3	690	384														
5 Rangli Rangliot	92.6	134	122	4	..	6,928	7,083	503	337	181	168	1,119	885														
Kurseong Subdivision	118.8	306	306	6	13	9,968	10,264	203	162	73	54	868	651														
6 Kurseong	164.2	189	181	23	18	19,190	18,743	1,776	1,339	2,068	1,854	7,348	5,986														
	162.7	189	181	11	7	18,211	17,896	774	599	1,255	1,121	3,786	3,032														
	1.5	..	..	12	11	979	847	1,002	740	813	733	3,562	2,964												
Kurseong	126.6	154	136	23	18	13,005	12,668	1,605	1,213	2,065	1,851	6,870	5,683														
	125.1	154	136	11	7	12,026	11,821	603	473	1,252	1,118	3,308	2,719														
	1.5	..	..	12	11	979	847	1,002	740	813	733	3,562	2,964												
<i>Kurseong</i>																											
	1.5	..	..	12	11	979	847	1,002	740	813	733	3,562	2,964												

TABLE 1.8—E—SUMMARY OF LIVELIHOOD CLASSES AND VARIATIONS IN POPULATION—*contd.*

District, Subdivision, Police Station or Township	Area in sq. miles.	LIVELIHOOD CLASSES														•	
		Agricultural Classes															
		I—Cultivators of land wholly or mainly owned and their dependants						II—Cultivators of land wholly or mainly unowned and their dependants									
		1951			1941			Percentage Variation			Density						
Population			Percentage Variation			Density			Density			Density			Density		
1951			1941			1941 to 1951			1931 to 1941			1951			1941		
Persons			Males			Females			Persons			Persons			Persons		
7	Mirik	•	37.6	16,136	8,204	7,932	17,066	—	5.4	+19.3	429	449	1,332	1,370	•	14	
Siliguri Subdivision			266.4	116,475	67,459	49,016	90,014	+	29.4	+12.2	437	349	11,676	10,043	11,689	10,010	
			262.8	83,995	46,556	37,439	79,527	+	5.6	+7.2	320	313	11,525	9,922	11,489	9,846	
			3.6	32,480	20,903	11,577	10,487	+	209.7	+72.9	9,022	2,913	151	121	200	164	
8	Siliguri	•	124.4	68,280	40,859	27,421	42,363	+	61.2	+17.8	549	342	3,047	2,540	4,654	4,089	
			120.8	35,900	19,956	15,844	31,876	+	12.3	+6.6	296	265	2,896	2,419	4,454	3,925	
			3.6	32,480	20,903	11,577	10,487	+	209.7	+72.9	9,022	2,913	151	121	200	164	
	Siliguri	•	3.6	32,480	20,903	11,577	10,487	+	209.7	+72.9	9,022	2,913	151	121	200	164	
9	Kharibari	•	78.4	24,876	13,953	10,929	24,216	+	2.7	+4.6	317	346	4,662	4,023	3,696	3,043	
10	Pharsidewa	•	63.6	23,319	12,647	10,672	23,435	—	0.5	+10.8	367	366	3,967	3,480	3,339	2,878	
Kalimpong Subdivision			407.9	93,441	49,237	44,204	79,042	+	18.2	+15.9	229	194	18,466	17,862	6,220	5,921	
			404.3	76,764	40,029	36,735	67,081	+	14.4	+12.9	190	166	18,175	17,571	6,200	5,903	
			3.6	16,677	9,208	7,469	11,961	+	39.4	+36.3	4,632	3,322	291	291	20	18	
11	Kalimpong	•	235.4	76,463	40,319	36,144	63,907	+	19.6	+16.5	325	272	15,600	15,241	5,319	5,084	
			231.8	59,786	31,111	28,675	51,946	+	15.1	+12.8	258	224	16,309	14,950	5,299	5,066	
			3.6	16,677	9,208	7,469	11,961	+	39.4	+36.3	4,632	3,322	291	291	20	18	
	Kalimpong	•	3.6	16,677	9,208	7,469	11,961	+	39.4	+36.3	4,632	3,322	291	291	20	18	
12	Garubathan	•	172.5	16,978	8,918	8,060	15,135	+	12.2	+13.3	98	87	2,866	2,621	901	837	

TABLE 1.8—E—SUMMARY OF LIVELIHOOD CLASSES AND VARIATIONS IN POPULATION—concl'd.

LIVELIHOOD CLASSES																
District, Subdivision, Police Station, Township sq. miles		Agricultural classes						Non-Agricultural Classes								
		III—Cultivating labourers and their dependants			IV—Non-cultivating owners of land, Agri- cultural rent receivers and their dependants			Persons (including dependants) who derive their principal means of livelihood from								
		Males		Females	Males		Females	V—Production other than cultivation			VI—Commerce		VII—Transport		VIII—Other services and miscellaneous sources	
		15	16	17	18	19	20	21	22	23	24	25	26			
7	Mirkh	37.6	35	45	..	..	6,185	6,075	171	126	3	3	478	313		
Siliguri Subdivision	T	266.4	1,111	680	210	169	19,896	15,805	8,032	4,930	4,207	2,254	10,638	5,125		
	R	262.8	1,086	672	149	117	17,007	14,325	1,532	857	1,222	665	2,546	1,035		
	U	3.6	25	8	61	52	2,889	1,480	6,500	4,073	2,985	1,589	8,092	4,090		
8	Siliguri	124.4	633	480	84	66	12,113	9,052	7,165	4,446	3,879	2,140	9,284	4,608		
Siliguri	T	120.8	608	472	23	14	9,224	7,572	665	373	894	551	1,192	518		
	R	3.6	25	8	61	52	2,889	1,480	6,500	4,073	2,985	1,589	8,092	4,090		
	U															
	Siliguri	3.6	25	8	61	52	2,889	1,480	6,500	4,073	2,985	1,589	8,092	4,090		
9	Kharibari	78.4	382	130	122	102	3,242	2,834	696	379	287	84	866	328		
10	Phansidewa	63.6	96	70	4	1	4,541	3,919	171	105	41	30	488	189		
Kalimpong Subdivision	T	407.9	2,000	2,000	25	18	10,655	9,246	2,918	1,957	581	470	8,372	6,730		
	R	404.3	2,000	1,999	25	18	9,082	7,941	816	540	277	225	3,454	2,538		
	U	3.6	..	1	..	..	1,573	1,305	2,102	1,417	304	245	4,918	4,192		
11	Kalimpong	235.4	1,874	1,900	25	18	6,044	4,965	2,822	1,911	567	460	8,068	6,565		
Kalimpong	T	231.8	1,874	1,899	25	18	4,471	3,660	720	494	263	215	3,160	2,373		
	R	3.6	..	1	..	..	1,573	1,305	2,102	1,417	304	245	4,918	4,192		
	U															
	Kalimpong	3.6	..	1	..	..	1,573	1,305	2,102	1,417	304	245	4,918	4,192		
12	Garubathan	172.5	126	100	..	..	4,611	4,281	96	46	14	10	304	165		

T stands for Total, R for Rural and U for Urban. Those Police Stations which are not classified by T, R and U have an entirely rural population.

(a) Area provided by Surveyor General, India, through Registrar General, India. The total of areas of subdivisions will differ from this figure.

(b) Area derived from Jurisdiction Lists and confirmed by the Director of Land Records and Surveys, West Bengal. Calculations of density are based on this figure.

TABLE 1.9—ECONOMIC TABLE I—LIVELIHOOD CLASSES AND SUBCLASSES

(NOTE: This table classifies the population first into Agricultural and Non-Agricultural Classes and next into eight Census livelihood classes by principal means of livelihood and shows under each class how many are selfsupporting, non-earning or fully dependants, and earning or partly dependants.)

District and Tract	Total Population				Persons	Males	Females	Selfsupporting per- sons		Non-earning dependants		Earning dependants	
	Persons	Males	Females	Males				Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	10	11	12	13	
ALL AGRICULTURAL CLASSES													
TOTAL POPULATION													
	445,260	239,018	206,242	142,836	74,266	68,570	26,874	5,365	44,485	60,298	2,907	2,907	
Total	350,779	184,106	166,673	140,280	72,942	67,338	26,415	5,247	43,727	59,246	2,800	2,845	
Urban	94,481	54,912	39,569	2,556	1,324	1,232	459	118	758	1,052	107	62	
RURAL POPULATION													
Rural—92	136,026	69,732	66,294	36,263	18,530	17,733	6,275	1,909	11,331	14,725	924	1,099	
Rural—93	53,994	27,789	26,205	7,320	3,763	3,557	1,199	239	2,377	2,970	187	348	
Rural—94	83,995	46,556	37,439	44,806	24,249	20,557	10,077	577	13,403	19,580	769	400	
Rural—95	76,764	40,029	36,735	51,891	26,400	25,491	8,864	2,522	16,616	21,971	920	998	
URBAN POPULATION													
Urban—37	62,001	34,009	27,992	1,774	887	887	277	102	507	723	103	62	
Urban—38	32,480	20,903	11,577	782	437	345	182	16	251	329	4	..	
ALL NON-AGRICULTURAL CLASSES													
TOTAL POPULATION													
	445,260	239,018	206,242	302,424	164,752	137,672	89,040	35,518	70,611	94,272	5,101	7,882	
Total	350,779	184,106	166,673	210,499	111,164	99,335	59,917	31,976	47,656	60,997	3,591	6,362	
Urban	94,481	54,912	39,569	91,925	53,588	38,337	29,123	3,542	22,955	33,275	1,510	1,520	
RURAL POPULATION													
Rural—92	136,026	69,732	66,294	99,763	51,202	48,561	26,003	16,031	23,413	29,231	1,786	3,299	
Rural—93	53,994	27,789	26,205	46,674	24,026	22,648	11,396	5,897	11,702	15,161	928	1,590	
Rural—94	83,995	46,556	37,439	39,189	22,307	16,882	15,273	7,314	6,648	8,961	386	607	
Rural—95	76,764	40,029	36,735	24,873	13,629	11,244	7,245	2,734	5,893	7,644	491	866	
URBAN POPULATION													
Urban—37	62,001	34,009	27,992	60,227	33,122	27,105	15,973	3,121	15,750	22,476	1,399	1,508	
Urban—38	32,480	20,903	11,577	31,698	20,466	11,232	13,150	421	7,205	10,799	111	12	

TABLE 1.9—ECONOMIC TABLE I—LIVELIHOOD CLASSES AND SUBCLASSES—*contd.*

District and Tract	I—Cultivators of land wholly or mainly owned and their dependants								II—Cultivators of land wholly or mainly unowned and their dependants							
	Total		Selfsupporting persons		Non-earning dependants		Earning dependants		Total		Selfsupporting persons		Non-earning dependants		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29

DARJEELING DISTRICT

	1950	1955	1960	1965	1970	1975	1980	1985	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Total	48,554	45,525	15,823	3,131	30,835	40,438	1,896	1,956	21,146	19,084	8,718	1,272	11,596	17,076	832	736					
Rural	47,824	44,609	15,525	3,034	30,304	39,678	1,795	1,897	20,915	18,892	8,624	1,263	11,464	16,894	827	735					
Urban	930	916	298	97	531	760	101	59	231	192	94	9	132	182	5	1					
Rural—92	14,463	13,828	4,548	1,335	9,166	11,667	749	826	3,124	3,062	1,283	427	1,724	2,422	117	213					
Rural—93	3,461	3,288	1,044	171	2,239	2,793	178	324	102	81	38	9	64	72	..	..			
Rural—94	11,525	9,922	4,211	274	9,556	9,556	336	92	11,489	9,846	5,144	240	5,939	9,311	406	295					
Rural—95	18,175	17,571	5,722	1,254	11,921	15,662	532	655	6,200	5,903	2,159	587	3,737	5,089	304	227					
Urban—37	779	795	237	89	443	647	99	59	31	28	11	6	16	21	4	1					
Urban—38	151	121	61	8	88	113	2	..	200	164	83	3	116	161	1	..					

III—Cultivating labourers and their dependants

	their dependants															
	Total				Selfsupporting persons				Non-earning dependants				Earning dependants			
	Males		Females		Males		Females		Males		Females		Males		Females	
	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
Total	4,239	3,690	2,238	942	1,825	2,536	176	212	327	271	95	20	229	248	3	3
Rural	4,202	3,679	2,205	938	1,821	2,529	176	212	201	158	61	12	138	145	2	1
Urban	37	11	33	4	4	7	..	..	126	113	34	8	91	103	1	2
Rural-92	927	827	434	146	435	622	58	59	16	16	10	1	6	14	..	1
Rural-93	189	181	116	59	64	98	9	24	11	7	1	..	10	7	..	..
Rural-94	1,086	672	684	58	377	601	25	13	149	117	38	5	109	112	2	..
Rural-95	2,000	1,999	971	675	945	1,208	84	116	25	18	12	6	13	12	..	..
Urban-37	12	3	11	1	1	2	..	..	65	61	18	6	47	53	..	2
Urban-38	25	8	22	3	3	5	..	..	61	52	16	2	44	50	1	..

TABLE 1.9—ECONOMIC TABLE I—LIVELIHOOD CLASSES AND SUBCLASSES—*concd.*

District and Tract	Persons (including dependants) who derive their principal means of livelihood from													
	V—Production other than cultivation							VI—Commerce						
	Selfsupporting persons			Non-earning dependants		Earning dependants	Total	Selfsupporting persons		Non-earning dependants		Earning dependants		
	Males	Females	Total	Males	Females	Total		Males	Females	Total	Males	Females	Total	
DARJEELING DISTRICT														
Total	92,958	86,866	179,824	40,277	51,266	91,543	18,096	9,349	830	8,442	11,072	305	240	
Rural	85,615	81,894	167,509	37,299	46,770	84,069	5,118	2,706	346	2,249	2,854	163	130	
Urban	7,343	4,972	12,315	314	4,496	4,810	12,978	6,643	484	6,193	8,218	142	110	
Rural—92	41,315	41,732	83,047	19,491	23,977	43,468	1,996	964	144	971	1,121	61	69	
Rural—93	18,211	17,896	36,107	8,648	11,209	19,857	774	331	88	401	477	42	34	
Rural—94	17,007	14,325	31,332	5,125	6,659	11,784	1,532	981	61	534	790	17	6	
Rural—95	9,082	7,941	17,023	3,835	4,925	8,760	816	430	53	343	466	43	21	
Urban—37	4,454	3,492	7,946	301	3,032	3,333	6,478	2,947	412	3,415	4,219	116	108	
Urban—38	2,889	1,480	4,369	13	1,464	1,477	6,500	3,696	72	2,778	3,999	26	2	
Total	8,278	5,786	14,064	70	5,481	5,551	45,420	25,418	4,351	18,432	26,453	1,570	2,074	
Rural	3,230	2,369	5,599	21	1,366	2,194	17,201	9,941	1,656	6,742	9,179	518	907	
Urban	5,048	3,417	8,465	49	2,094	3,287	28,219	15,477	2,695	14,690	17,274	1,052	1,167	
Rural—92	476	358	834	1	217	311	7,415	4,394	764	2,734	3,822	287	551	
Rural—93	1,255	1,121	2,376	2	631	1,059	3,786	1,804	353	1,822	2,416	160	263	
Rural—94	1,222	665	1,887	6	417	649	1,035	1,959	153	572	863	16	19	
Rural—95	277	225	502	12	101	175	3,454	1,784	386	1,614	2,078	56	74	
Urban—37	2,063	1,828	3,891	32	1,045	1,716	20,127	10,013	2,376	9,105	13,509	1,009	1,161	
Urban—38	2,965	1,589	4,554	17	1,049	1,571	8,092	5,464	319	2,585	3,765	43	6	

Persons (including dependants) who derive their principal means of livelihood from

District and Tract	Persons (including dependants) who derive their principal means of livelihood from														Earning dependants
	VII—Transport							VIII—Other services and miscellaneous sources							
	Selfsupporting persons			Non-earning dependants			Total	Selfsupporting persons			Non-earning dependants			Earning dependants	
	Males	Females	Total	Males	Females	Total		Males	Females	Total	Males	Females	Total		
Total	8,278	5,786	14,064	70	5,481	5,551	45,420	25,418	4,351	18,432	26,453	1,570	2,074		
Rural	3,230	2,369	5,599	21	1,366	2,194	17,201	9,941	1,656	6,742	9,179	518	2,074		
Urban	5,048	3,417	8,465	49	2,094	3,287	28,219	15,477	2,695	14,690	17,274	1,052	2,074		
Rural—92	476	358	834	1	217	311	7,415	4,394	764	2,734	3,822	287	2,074		
Rural—93	1,255	1,121	2,376	2	631	1,059	3,786	1,804	353	1,822	2,416	160	2,074		
Rural—94	1,222	665	1,887	6	417	649	1,035	1,959	153	572	863	16	2,074		
Rural—95	277	225	502	12	101	175	3,454	1,784	386	1,614	2,078	56	2,074		
Urban—37	2,063	1,928	3,991	32	1,045	1,716	20,127	10,013	2,376	9,105	13,509	1,009	2,074		
Urban—38	2,965	1,569	4,534	17	1,049	1,571	8,092	5,464	319	2,585	3,765	43	2,074		

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD

NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM															
Livelihood Classes	Cultivation of owned land						Cultivation of unowned land								
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants				
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females			
	2	3	4	5	6	7	8	9	10	11	12	13			
TOTAL POPULATION															
DARJEELING DISTRICT															
All Agricultural Classes—															
I—Cultivators of land wholly or mainly owned	3	11	..	..	3	11	480	692	70	23	410	669	
II—Cultivators of land wholly or mainly unowned	15	..	15	..	..	..	75	82	..	..	75	82
III—Cultivating labourers	4	3	1	1	3	2	6	119	5	..	1	119			
IV—Non-cultivating owners of land; Agricultural rent receivers	2	1	2	..	..	1	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—															
V—Production other than cultivation	703	51	668	13	35	38	530	216	487	162	43	54			
VI—Commerce	89	33	71	15	18	18	41	25	40	10	1	15			
VII—Transport	55	32	38	..	17	32	8	..	8	..	..	..
VIII—Other services and miscellaneous sources	400	173	381	41	19	132	87	19	82	7	5	12			
Total	1,271	304	1,176	70	95	234	1,227	1,153	692	202	535	951			
NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM															
Livelihood Classes	Employment as cultivating labourers						Rent on agricultural land								
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants				
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females			
	14	15	16	17	18	19	20	21	22	23	24	25			
TOTAL POPULATION															
All Agricultural Classes—															
I—Cultivators of land wholly or mainly owned	460	734	26	15	434	719	..	..	..	..	..	..
II—Cultivators of land wholly or mainly unowned	343	394	85	17	258	377	..	..	..	..	..	..
III—Cultivating labourers	151	75	..	..	151	75	13	2	13	2	..	..	
IV—Non-cultivating owners of land; Agricultural rent receivers.	2	..	2	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—															
V—Production other than cultivation	341	592	48	6	293	586	7	..	7	..	..	..
VI—Commerce	13	3	1	..	12	3	30	3	30	1	..	..	
VII—Transport	10	4	2	..	8	4	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	107	86	18	3	89	83	3	2	3	2	..	..	
Total	1,427	1,888	182	41	1,245	1,847	53	7	53	5	..	2			

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—contd.

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM									
	Production other than cultivation					Commerce				
	Total		Selfsupporting persons		Earning dependants	Total		Selfsupporting persons		Earning dependants
	Males	Females	Males	Females		Males	Females	Males	Females	
26	27	26	29	30	31	32	33	34	35	37
TOTAL POPULATION										
DARJEELING DISTRICT										
All Agricultural Classes—										
I—Cultivators of land wholly or mainly owned	822	330	411	33	411	297	580	366	23	214
II—Cultivators of land wholly or mainly unowned	649	295	431	64	218	226	146	50	3	96
III—Cultivating labourers	14	4	9	2	5	2	23	11	3	5
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	15	4	2	2
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—										
V—Production other than cultivation	2,733	4,350	448	44	2,335	4,306	397	108	356	29
VI—Commerce	82	66	21	5	61	61	162	42	71	41
VII—Transport	24	18	7	..	17	18	20	20	2	91
VIII—Other services and miscellaneous sources	192	195	63	4	129	191	209	86	156	7
Total	4,566	5,258	1,390	157	3,176	5,101	1,552	337	1,046	77

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM									
	Transport					Other services and miscellaneous sources				
	Total		Selfsupporting persons		Earning dependants	Total		Selfsupporting persons		Earning dependants
	Males	Females	Males	Females		Males	Females	Males	Females	
38	39	40	41	42	43	44	45	46	47	49
TOTAL POPULATION										
All Agricultural Classes—										
I—Cultivators of land wholly or mainly owned	52	2	23	..	29	2	859	242	464	17
II—Cultivators of land wholly or mainly unowned	38	..	30	..	8	..	347	63	170	19
III—Cultivating labourers	24	1	22	..	2	1	22	6	13	1
IV—Non-cultivating owners of land; Agricultural rent receivers	1	..	1	..	..	..	5	..	4	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—										
V—Production other than cultivation	29	42	14	..	15	42	373	250	85	22
VI—Commerce	23	2	12	1	13	1	168	113	59	8
VII—Transport	41	26	7	..	34	26	127	137	31	..
VIII—Other services and miscellaneous sources	58	1	11	..	47	1	1,396	1,592	168	15
Total	268	74	120	1	148	73	3,297	2,403	994	82

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—contd.

NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM													
Livelihood Classes	Cultivation of owned land						Cultivation of unowned land						
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males
	1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL POPULATION													
Rural Tract No. 92 (Police Stations—Darjeeling, Jore Bungalow, Pulbazar, Sukhiapokri and Rangli Rangliot)													
All Agricultural Classes—													
I—Cultivators of land wholly or mainly owned	..	..	..	..	..	..	..	330	453	43	13	287	440
II—Cultivators of land wholly or mainly unowned	12	..	12	..	..	..	..	5	5	..	..	6	5
III—Cultivating labourers	..	1	..	..	..	..	1	2	29	1	..	1	29
IV—Non-cultivating owners of land; Agricultural rent receivers	2	1	2	..	..	..	1	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—													
V—Production other than cultivation	410	7	403	4	7	7	3	154	178	128	150	26	28
VI—Commerce	20	5	18	5	2	2	..	8	2	8	2	..	..
VII—Transport	5	..	4	..	..	1	..	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	39	14	36	1	3	3	13	30	1	30	..	..	1
Total	488	28	475	10	13	13	18	529	668	210	165	319	503

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM												
	Employment as cultivating labourers						Rent on agricultural land						
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
	14	15	16	17	18	19	20	21	22	23	24	25	
TOTAL POPULATION													
	329	249	3	4	326	245	..	..	..	..	..	..
I—Cultivators of land wholly or mainly owned	114	181	31	4	83	177	..	..	..	..	..	..
II—Cultivators of land wholly or mainly unowned	48	29	..	..	48	29	4	..	4	..	..	..
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—	..	..	..	..	..	..	..	..	..	..	..	..
V—Production other than cultivation	2	..	..	..	2	..	..	..	..	..	..	..
VI—Commerce	..	..	..	..	..	..	..	..	..	..	..	..
VII—Transport	..	..	..	..	..	..	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	34	6	8	..	26	6	..	..	..	..	..	..
Total	527	465	42	8	485	457	4	..	4	..	..	..

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—contd.

NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM.												
Livelihood Classes	Production other than cultivation						Commerce					
	Selfsupporting persons			Earning dependants			Selfsupporting persons			Earning dependants		
	Males		Females	Males		Females	Males		Females	Males		Females
	Total	27	28	29	30	31	Total	32	33	34	35	37
TOTAL POPULATION												
Rural Tract No. 92 (Police Stations—Darjeeling, Jore Bungalow, Pulbazar, Sukhiapokri and Rangli Rangliot)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	151	97	78	14	73	83	192	15	181	11	11	4
II—Cultivators of land wholly or mainly unowned	66	31	43	3	23	28	9	..	9	..	..	..
III—Cultivating labourers	3	..	2	..	1	..	1	1	1	1	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers . . . . .	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	1,608	2,549	306	27	1,302	2,522	206	60	190	11	16	49
VI—Commerce	39	31	10	..	29	31	20	4	14	..	6	4
VII—Transport	6	4	4	..	2	4	5	2	6	..	..	2
VIII—Other services and miscellaneous sources	79	105	28	..	51	105	29	12	24	..	5	12
Total	1,952	2,817	471	44	1,481	2,773	462	94	424	23	38	71

NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM												
Livelihood Classes	Transport						Other services and miscellaneous sources					
	Selfsupporting persons			Earning dependants			Selfsupporting persons			Earning dependants		
	Males		Females	Males		Females	Males		Females	Males		Females
	Total	38	39	40	41	42	43	44	45	46	47	48
TOTAL POPULATION												
Rural Tract No. 92 (Police Stations—Darjeeling, Jore Bungalow, Pulbazar, Sukhiapokri and Rangli Rangliot)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	3	..	2	..	..	1	..	156	65	105	11	51
II—Cultivators of land wholly or mainly unowned	1	..	..	..	..	1	..	32	11	27	8	5
III—Cultivating labourers	22	..	21	..	..	1	..	13	6	6	..	7
IV—Non-cultivating owners of land; Agricultural rent receivers . . . . .	..	..	..	..	..	..	..	1	..	1	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	5	..	2	..	..	3	..	93	47	32	16	61
VI—Commerce	2	..	1	..	..	1	..	31	35	10	1	21
VII—Transport	6	..	1	..	..	5	..	19	40	4	..	15
VIII—Other services and miscellaneous sources . . . . .	..	..	..	..	..	..	..	238	419	36	5	202
Total	39	..	27	..	..	12	..	583	617	221	41	362

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—contd.

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Cultivation of owned land						Cultivation of unowned land					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL POPULATION												
Rural Tract No. 93 (Police Stations—Kursong and Mirik)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	..	..	..	..	..	..	3	33	2	6	1	27
II—Cultivators of land wholly or mainly unowned	..	..	..	..	..	..	..	..	..	..	..	..
III—Cultivating labourers	3	1	1	..	2	1	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	120	37	99	5	21	32	7	..	6	..	1	..
VI—Commerce	31	25	17	10	14	15	1	..	1	..	..	..
VII—Transport	32	30	16	..	16	30	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	24	90	21	22	3	68	..	..	..	..	..	..
Total	210	183	154	37	56	146	11	33	9	6	2	27

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Employment as cultivating labourers						Rent on agricultural land					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
14	14	15	16	17	18	19	20	21	22	23	24	25
TOTAL POPULATION												
Rural Tract No. 93 (Police Stations—Kursong and Mirik)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	22	273	..	6	22	267	..	..	..	..	..	..
II—Cultivators of land wholly or mainly unowned	..	..	..	..	..	..	..	..	..	..	..	..
III—Cultivating labourers	4	16	..	..	4	16	6	2	6	2	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	291	583	..	..	291	583	1	..	1	..	..	..
VI—Commerce	11	3	1	..	10	3	..	..	..	..	..	..
VII—Transport	8	..	..	..	8	4	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	60	65	1	..	59	65	..	..	..	..	..	..
Total	396	944	2	6	394	938	7	2	7	2	..	..

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—*contd.*

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Production other than cultivation						Commerce					
	Selfsupporting persons			Earning dependants			Selfsupporting persons			Earning dependants		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
26	27	28	29	30	31	32	33	34	35	36	37	37
TOTAL POPULATION												
22	1	18	..	4	1	51	16	48	1	3	15	15
4	..	4	..	..	..	..	..	..	..	..	..	..
2	1	2	1	..	..	20	8	17	1	3	7	7
..
352	512	108	3	274	509	130	34	125	14	5	20	20
5	9	1	..	4	9	7	1	2	..	5	1	1
1	3	..	..	1	3	5	6	4	..	1	6	6
33	36	19	..	15	36	15	13	10	..	5	13	13
Total	449	562	151	4	298	558	228	78	206	16	22	62

Rural Tract No. 93 (Police Stations—Kurseong and Mirik)

All Agricultural Classes—
 I—Cultivators of land wholly or mainly owned
 II—Cultivators of land wholly or mainly unowned
 III—Cultivating labourers
 IV—Non-cultivating owners of land; Agricultural rent receivers
 All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—
 V—Production other than cultivation
 VI—Commerce
 VII—Transport
 VIII—Other services and miscellaneous sources

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Transport						Other services and miscellaneous sources					
	Selfsupporting persons			Earning dependants			Selfsupporting persons			Earning dependants		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
38	39	40	41	42	43	44	45	46	47	48	49	49
TOTAL POPULATION												
2	2	..	..	2	2	207	14	61	2	146	12	12
..	..	..	..	..	..	1	..	1	..	..	..	..
..	..	..	..	..	..	1	1	1	1	..	..	..
..
..
38	38	..	..	..	38	101	56	14	..	87	56	56
2	..	1	..	1	..	18	1	10	..	8	1	1
4	..	1	..	3	..	32	17	14	..	18	17	17
3	..	1	..	2	..	98	81	22	..	76	81	81
Total	11	40	3	..	8	40	458	170	123	3	335	167

Rural Tract No. 93 (Police Stations—Kurseong and Mirik)

All Agricultural Classes—
 I—Cultivators of land wholly or mainly owned
 II—Cultivators of land wholly or mainly unowned
 III—Cultivating labourers
 IV—Non-cultivating owners of land; Agricultural rent receivers
 All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—
 V—Production other than cultivation
 VI—Commerce
 VII—Transport
 VIII—Other services and miscellaneous sources

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—contd.

Livelihood Classes		NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
		Cultivation of owned land						Cultivation of unowned land					
		Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
		Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1		2	3	4	5	6	7	8	9	10	11	12	13
TOTAL POPULATION													
Rural Tract No. 94 (Police Stations—Siliguri, Kharibari and Phansidewa) All Agricultural Classes— I—Cultivators of land wholly or mainly owned 3 II—Cultivators of land wholly or mainly unowned 2 III—Cultivating labourers 1 IV—Non-cultivating owners of land; Agricultural rent receivers All Non-Agricultural Classes (persons who derive their principal means of livelihood from)— V—Production other than cultivation 114 VI—Commerce 5 VII—Transport 1 VIII—Other services and miscellaneous sources Total													
		126	5	116	5	10	..	424	120	232	3	188	117
Rural Tract No. 94 (Police Stations—Siliguri, Kharibari and Phansidewa) All Agricultural Classes— I—Cultivators of land wholly or mainly owned 16 II—Cultivators of land wholly or mainly unowned 34 III—Cultivating labourers 20 IV—Non-cultivating owners of land; Agricultural rent receivers 2 All Non-Agricultural Classes (persons who derive their principal means of livelihood from)— V—Production other than cultivation 37 VI—Commerce 2 VII—Transport 5 VIII—Other services and miscellaneous source Total													
		116	59	58	12	58	47	19	2	19	..	..	2

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—contd.

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Production other than cultivation						Commerce					
	Selfsupporting persons			Earning dependants			Total			Selfsupporting persons		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Rural Tract No. 94 (Police Stations—Siliguri, Kharibari and Phansidewa)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	171	75	246	13	56	69	129	3	41	2	88	1
II—Cultivators of land wholly or mainly unowned	420	239	659	60	139	200	123	5	32	1	91	4
III—Cultivating labourers	7	2	9	1	3	4	1	1	..	1	1	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	5	..	3	..	2	..
TOTAL POPULATION												
	26	27	53	28	29	57	30	31	61	34	35	69
Rural Tract No. 94 (Police Stations—Siliguri, Kharibari and Phansidewa)												
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	335	549	884	15	12	27	320	537	20	11	1	9
VI—Commerce	5	4	9	5	3	8	..	1	20	5	2	3
VII—Transport	3	8	11	..	..	..	3	8	..	..	..	..
VIII—Other services and miscellaneous sources	6	17	23	1	..	1	5	17	4	3	..	1
Total	947	894	1,841	21	15	36	326	562	302	17	7	24
NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM												
Livelihood Classes	Transport						Other services and miscellaneous sources					
	Selfsupporting persons			Earning dependants			Total			Selfsupporting persons		
	Males Females			Males Females			Males Females			Males Females		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
Rural Tract No. 94 (Police Stations—Siliguri, Kharibari and Phansidewa)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	7	..	7	..	..	..	2	..	155	2	92	63
II—Cultivators of land wholly or mainly unowned	16	..	16	..	..	..	5	..	146	..	70	76
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	1	..	1	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	12	2	14	..	..	..	2	2	9	18	2	18
VI—Commerce	1	..	1	..	..	..	..	..	7	..	5	2
VII—Transport	..	2	2	..	..	..	..	2	..	..	..	..
VIII—Other services and miscellaneous sources	1	..	1	..	..	..	..	..	21	3	12	9
Total	38	4	42	29	..	29	9	4	338	23	181	157

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—*contd.*

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM												
	Cultivation of owned land						Cultivation of unowned land						
	Total		Self-supporting persons		Earning dependants		Total		Self-supporting persons		Earning dependants		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
	2	3	4	5	6	7	8	9	10	11	12	13	
1	TOTAL POPULATION												
Rural Tract No. 95 (Police Stations—Kalimpong and Garubathan)													
All Agricultural Classes—													
I—Cultivators of land wholly or mainly owned	..	11	..	..	..	11	25	176	14	1	11	175
II—Cultivators of land wholly or mainly unowned	..	..	..	..	..	..	3	90	3	..	..	90
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—													
V—Production other than cultivation	9	..	9	..	..	..	148	24	139	12	9	12
VI—Commerce	13	..	11	..	2	..	26	21	25	6	1	15	
VII—Transport	4	..	4	..	..	..	3	..	3	..	..	..
VIII—Other services and miscellaneous sources	103	..	103	..	..	..	31	17	26	6	5	11
Total	129	11	127	..	2	11	236	328	210	25	26	303	

24

NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM

Livelihood Classes	Employment as cultivating labourers						Rent on agricultural land					
	Total		Self-supporting persons		Earning dependants		Total		Self-supporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	14	15	16	17	18	19	20	21	22	23	24	25

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—*contd.*

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Production other than cultivation						Commerce					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
•	26	27	28	29	30	31	32	33	34	35	36	37
TOTAL POPULATION												
Rural Tract No. 95 (Police Stations—Kalimpong and Garubathan)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	447	154	183	6	264	148	174	8	73	2	101	6
II—Cultivators of land wholly or mainly unowned	158	25	103	6	55	19	11	5	7	2	4	3
III—Cultivating labourers	2	1	1	..	1	1	1	1	..	..	1	1
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	360	711	12	2	348	709	8	6	5	3	3	3
VI—Commerce	11	1	1	..	10	1	24	6	2	3	22	3
VII—Transport	2	1	2	..	..	1	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	7	3	5	1	2	2	14	6	9	1	5	5
Total	987	896	307	15	680	881	232	32	96	11	136	21

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Transport						Other services and miscellaneous sources					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
•	38	39	40	41	42	43	44	45	46	47	48	49
TOTAL POPULATION												
Rural Tract No. 95 (Police Stations—Kalimpong and Garubathan)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	32	..	14	..	18	..	287	150	181	3	106	147
II—Cultivators of land wholly or mainly unowned	19	..	17	..	2	..	164	51	70	11	94	40
III—Cultivating labourers	2	1	1	..	1	1	8	5	6	..	2	5
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	1	..	1	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	3	..	..	..	2	..	37	11	19	4	18	7
VI—Commerce	6	..	4	..	2	..	9	2	3	..	6	2
VII—Transport	5	3	..	..	5	3	5	34	..	..	5	34
VIII—Other services and miscellaneous sources	3	..	1	..	2	..	45	49	6	2	39	47
Total	69	4	37	..	32	4	556	302	286	20	270	282

TABLE 1.10—ECONOMIC TABLE II —SECONDARY MEANS OF LIVELIHOOD—contd.

NUMBER OF PERSONS DERIVING THEIR PRINCIPAL MEANS OF LIVELIHOOD FROM													
Livelihood Classes	Cultivation of owned land						Cultivation of unowned land						
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
	2	3	4	5	6	7	8	9	10	11	12	13	
1													
TOTAL POPULATION													
Urban Tract No. 37 (Towns—Darjeeling, Kurseong and Kalimpong)													
All Agricultural Classes—													
I—Cultivators of land wholly or mainly owned	..	..	..	..	..	..	..	..	..	..	..	..	..
II—Cultivators of land wholly or mainly unowned	..	..	..	..	..	..	..	..	..	..	..	..	..
III—Cultivating labourers	..	1	..	1	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—													
V—Production other than cultivation	45	3	44	..	1	3	..	1	..	..	..	1	..
VI—Commerce	15	2	15	..	..	2	..	..	..	..	..	..	..
VII—Transport	10	2	10	..	..	2	..	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	216	67	204	17	12	50	22	1	22	1	..	..	..
Total	286	75	273	18	13	57	22	2	22	1	..	..	1

NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM													
Livelihood Classes	Employment as cultivating labourers						Rent on agricultural land						
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
	14	15	16	17	18	19	20	21	22	23	24	25	
TOTAL POPULATION													
Urban Tract No. 37 (Towns—Darjeeling, Kurseong and Kalimpong)													
All Agricultural Classes—													
I—Cultivators of land wholly or mainly owned	53	43	12	4	41	39	..	..	..	..	..	..	..
II—Cultivators of land wholly or mainly unowned	1	..	..	..	1	..	..	..	..	..	..	..	..
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land ; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—													
V—Production other than cultivation	..	1	..	..	..	1	2	..	2	..	..	..	..
VI—Commerce	..	..	..	..	..	..	15	1	15	1	..	..	..
VII—Transport	..	..	..	..	..	..	..	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	1	3	..	..	1	3	..	..	..	..	..	..	..
Total	55	47	12	4	43	43	17	1	17	1	..	..	..

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—*contd.*

NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM													

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—contd.

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Cultivation of owned land						Cultivation of unowned land					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13
TOTAL POPULATION												
Urban Tract No. 38 (Town—Siliguri)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	..	..	..	..	..	..	1	..	1	..	..	..
II—Cultivators of land wholly or mainly unowned	1	..	1	..	..	..	..	..	..	..	..	..
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	5	..	5	..	..	..	..	..	..	..	..	..
VI—Commerce	5	1	5	..	..	..	..	2	..	2	..	..
VII—Transport	3	..	3	..	..	..	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	18	1	17	..	1	1	4	..	4	..	..	..
Total	32	2	31	..	1	2	5	2	5	2	..	..

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Employment as cultivating labourers						Rent on agricultural land					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	14	15	16	17	18	19	20	21	22	23	24	25
TOTAL POPULATION												
Urban Tract No. 38 (Town—Siliguri)												
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	..	..	..	..	..	..	..	..	..	..	..	..
II—Cultivators of land wholly or mainly unowned	..	..	..	..	..	..	..	..	..	..	..	..
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	..	..	..	..	..	..
All Non-agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	..	..	..	..	..	..	..	..	..	..	..	..
VI—Commerce	..	..	..	..	..	..	3	..	3	..	..	..
VII—Transport	..	..	..	..	..	..	..	..	..	..	..	..
VIII—Other services and miscellaneous sources	1	..	1	..	..	..	3	..	3	..	..	..
Total	1	..	1	..	..	..	6	..	6	..	..	..

TABLE 1.10—ECONOMIC TABLE II—SECONDARY MEANS OF LIVELIHOOD—*concd.*

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Production other than cultivation						Commerce					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Urban Tract No. 38 (Town—Siliguri)	TOTAL POPULATION											
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	3	..	3	..	..	..	5	..	3	..	2	..
II—Cultivators of land wholly or mainly unowned	..	..	..	..	..	..	2	..	2	..	..	..
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	2	..	2	..	..	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	19	2	..	..	19	2	4	..	3	..	1	..
VI—Commerce	6	..	3	..	3	..	20	1	8	..	12	1
VII—Transport	1	..	..	..	1	..	2	2	1	2	1	..
VIII—Other services and miscellaneous sources	9	1	5	..	4	1	22	2	12	1	10	1
Total	38	3	11	..	27	3	57	5	31	3	26	2

Livelihood Classes	NUMBER OF PERSONS DERIVING THEIR SECONDARY MEANS OF LIVELIHOOD FROM											
	Transport						Other services and miscellaneous sources					
	Total		Selfsupporting persons		Earning dependants		Total		Selfsupporting persons		Earning dependants	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
Urban Tract No. 38 (Town—Siliguri)	TOTAL POPULATION											
All Agricultural Classes—												
I—Cultivators of land wholly or mainly owned	..	..	..	..	..	..	2	1	2	1	..	..
II—Cultivators of land wholly or mainly unowned	2	..	2	..	..	..	3	..	2	..	1	..
III—Cultivating labourers	..	..	..	..	..	..	..	..	..	..	..	..
IV—Non-cultivating owners of land; Agricultural rent receivers	..	..	..	..	..	..	3	..	2	..	1	..
All Non-Agricultural Classes (persons who derive their principal means of livelihood from)—												
V—Production other than cultivation	2	..	2	..	..	..	15	2	1	1	14	1
VI—Commerce	4	1	2	1	2	..	18	1	9	1	9	..
VII—Transport	8	..	5	..	3	..	12	1	9	..	3	1
VIII—Other services and miscellaneous sources	4	..	3	..	1	..	40	4	13	1	27	3
Total	20	1	14	1	6	..	93	9	38	4	55	5

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS**

(Relates to Selfsupporting Persons Only)

Division and Subdivision of Industries and Services and Tract		Persons following the occupation as							
		Total		Employers		Employees		Independent workers	
		Males	Females	Males	Females	Males	Females	Males	Females
1		2	3	4	5	6	7	8	9
DARJEELING DISTRICT									
All Industries and Services	Total	88,205	35,344	245	32	69,374	32,339	18,586	2,973
	Rural	59,468	31,923	125	7	53,038	30,711	6,305	1,205
	Urban	28,737	3,421	120	25	16,336	1,628	12,281	1,768
Rural—92		25,757	16,006	87	..	23,202	15,435	2,468	571
Rural—93		11,283	5,896	10	..	10,036	5,591	1,237	305
Rural—94		15,203	7,295	28	4	13,749	7,164	1,426	127
Rural—95		7,225	2,726	..	3	6,051	2,521	1,174	202
Urban—37		15,642	3,012	63	18	9,521	1,426	6,058	1,568
Urban—38		13,095	409	57	7	6,815	202	6,223	200
Division 0—Primary Industries not elsewhere specified									
	Total	43,260	29,904	17	..	42,623	29,763	620	141
	Rural	42,670	29,746	13	..	42,123	29,628	534	118
	Urban	590	158	4	..	500	135	86	23
Rural—92		19,575	15,046	..	..	19,383	15,039	192	7
Rural—93		7,914	5,402	..	..	7,803	5,346	111	56
Rural—94		10,976	7,031	13	..	10,961	7,030	2	1
Rural—95		4,205	2,267	..	..	3,976	2,213	229	54
Urban—37		369	154	..	..	344	135	25	19
Urban—38		221	4	4	..	156	..	61	4
0.1—Stock Raising									
	Total	525	15	..	..	250	11	275	4
	Rural	472	14	..	..	198	10	274	4
	Urban	53	1	..	..	52	1	1	..
Rural—92		289	3	..	..	132	1	157	2
Rural—93		116	..	..	..	17	..	99	..
Rural—94		8	1	..	..	7	..	1	1
Rural—95		59	10	..	..	42	9	17	1
Urban—37		49	1	..	..	48	1	1	..
Urban—38		4	..	..	..	4	..	..	..
0.2—Rearing of small animals and insects									
	Total	18	1	..	..	..	..	18	1
	Rural	..	1	..	..	..	..	..	1
	Urban	18	..	..	..	..	..	18	..
Rural—92		..	1	..	..	..	..	..	1
Rural—93		..	..	..	..	..	..	..	..
Rural—94		..	..	..	..	..	..	..	..
Rural—95		..	..	..	..	..	..	..	..
Urban—37		..	..	..	..	..	..	..	..
Urban—38		18	..	..	..	..	..	18	..
0.3—Plantation Industries									
	Total	40,644	29,410	17	..	40,617	29,408	10	2
	Rural	40,320	29,283	13	..	40,307	29,283	..	..
	Urban	324	127	4	..	310	125	10	2
Rural—92		18,842	15,008	..	..	18,842	15,008	..	..
Rural—93		7,347	5,152	..	..	7,347	5,152	..	..
Rural—94		10,709	7,001	13	..	10,696	7,001	..	..
Rural—95		3,422	2,122	..	..	3,422	2,122	..	..
Urban—37		181	125	..	..	177	125	4	..
Urban—38		143	2	4	..	133	..	6	2

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract	Persons following the occupation as								
	Total		Employers		Employees		Independent workers		
	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	
0.4—Forestry and Collection of products not elsewhere speci- fied	Total .	2,025	478	..	..	1,751	344	274	134
	Rural .	1,871	448	..	..	1,614	335	257	113
	Urban .	154	30	..	..	137	9	17	21
Rural—92		441	34	..	..	406	30	35	4
Rural—93		449	250	..	..	439	194	10	56
Rural—94		258	29	..	..	258	29	..	..
Rural—95		723	135	..	..	511	82	212	53
Urban—37		136	28	..	..	119	9	17	19
Urban—38		18	2	..	..	18	..	..	2
0.5—Hunting (including trapp- ing and Game Propagation)	Total .	2	..	..	..	1	..	1	..
	Rural .	1	..	..	..	1	..	..	..
	Urban .	1	..	..	..	..	..	1	..
Rural—92 . . . . .		..	..	..	..	..	..	..	..
Rural—93 . . . . .		..	..	..	..	..	..	..	..
Rural—94 . . . . .		..	..	..	..	..	..	..	..
Rural—95		1	..	..	..	1	..	..	..
Urban—37		1	..	..	..	..	..	1	..
Urban—38 . . . . .		..	..	..	..	..	..	..	..
0.6—Fishing	Total .	46	..	..	..	4	..	42	..
	Rural .	6	..	..	..	3	..	3	..
	Urban .	40	..	..	..	1	..	39	..
Rural—92 . . . . .		..	..	..	..	..	..	..	..
Rural—93		5	..	..	..	3	..	2	..
Rural—94		1	..	..	..	..	..	1	..
Rural—95 . . . . .		..	..	..	..	..	..	..	..
Urban—37		2	..	..	..	..	..	2	..
Urban—38		38	..	..	..	1	..	37	..
Division 1—Mining and Quarry- ing	Total .	377	3	..	..	377	3	..	..
	Rural .	377	3	..	..	377	3	..	..
	Urban .	..	..	..	..	..	..	..	..
Rural—92 . . . . .		..	..	..	..	..	..	..	..
Rural—93 . . . . .		..	..	..	..	..	..	..	..
Rural—94 . . . . .		..	..	..	..	..	..	..	..
Rural—95		377	3	..	..	377	3	..	..
Urban—37 . . . . .		..	..	..	..	..	..	..	..
Urban—38 . . . . .		..	..	..	..	..	..	..	..
1.1—Coal mining	Total .	377	3	..	..	377	3	..	..
	Rural .	377	3	..	..	377	3	..	..
	Urban .	..	..	..	..	..	..	..	..
Rural—92 . . . . .		..	..	..	..	..	..	..	..
Rural—93 . . . . .		..	..	..	..	..	..	..	..
Rural—94 . . . . .		..	..	..	..	..	..	..	..
Rural—95		377	3	..	..	377	3	..	..
Urban—37 . . . . .		..	..	..	..	..	..	..	..
Urban—38 . . . . .		..	..	..	..	..	..	..	..
Division 2—Processing and Manufacture—Foodstuffs, Textiles, Leather and Products thereof	Total .	2,167	268	21	..	695	28	1,451	240
	Rural .	683	131	..	..	178	6	505	125
	Urban .	1,484	137	21	..	517	22	946	115
Rural—92		305	56	..	..	58	1	247	55
Rural—93		103	31	..	..	2	..	101	31
Rural—94		197	37	..	..	92	3	105	34
Rural—95		78	7	..	..	26	2	52	5
Urban—37		909	130	21	..	268	21	620	109
Urban—38		575	7	..	..	249	1	326	6

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract	Persons following the occupation as								
	Total		Employers		Employees		Independent workers		
	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	
2.0—Food Industries otherwise unclassified	Total .	57	4	..	..	19	..	38	4
	Rural .	12	3	..	..	4	..	8	3
	Urban .	45	1	..	..	15	..	30	1
Rural—92	. . . .	3	3	..	..	..	..	3	3
Rural—93	. . . .	1	..	..	..	..	..	1	..
Rural—94	. . . .	3	..	..	..	3	..	..	..
Rural—95	. . . .	5	..	..	..	1	..	4	..
Urban—37	. . . .	24	1	..	..	5	..	19	1
Urban—38	. . . .	21	..	..	..	10	..	11	..
2.1—Grains and pulses	Total .	266	32	1	..	207	1	58	31
	Rural .	88	30	..	..	82	1	6	29
	Urban .	178	2	1	..	125	..	52	2
Rural—92	. . . .	10	..	..	..	9	..	1	..
Rural—93	. . . .	2	..	..	..	..	..	2	..
Rural—94	. . . .	72	30	..	..	71	1	1	29
Rural—95	. . . .	4	..	..	..	2	..	2	..
Urban—37	. . . .	87	1	1	..	52	..	34	1
Urban—38	. . . .	91	1	..	..	73	..	18	1
2.2—Vegetable oil and dairy products	Total .	222	44	1	..	93	1	128	43
	Rural .	63	41	..	..	54	1	9	40
	Urban .	159	3	1	..	39	..	119	3
Rural—92	. . . .	54	20	..	..	49	1	5	19
Rural—93	. . . .	1	18	..	..	..	..	1	18
Rural—94	. . . .	5	2	..	..	4	..	1	2
Rural—95	. . . .	3	1	..	..	1	..	2	1
Urban—37	. . . .	89	3	1	..	21	..	67	3
Urban—38	. . . .	70	..	..	..	18	..	52	..
2.3—Sugar Industries	Total .	1	..	..	..	..	..	1	..
	Rural .	..	..	..	..	..	..	..	..
	Urban .	1	..	..	..	..	..	1	..
Urban—38	. . . .	1	..	..	..	..	..	1	..
2.4—Beverages	Total .	17	..	..	..	14	..	3	..
	Rural .	..	..	..	..	..	..	..	..
	Urban .	17	..	..	..	14	..	3	..
Urban—37	. . . .	3	..	..	..	3	..	..	..
Urban—38	. . . .	14	..	..	..	11	..	3	..
2.5—Tobacco	Total .	139	2	..	..	86	..	53	2
	Rural .	16	..	..	..	2	..	14	..
	Urban .	123	2	..	..	84	..	39	2
Rural—94	. . . .	16	..	..	..	2	..	14	..
Urban—38	. . . .	123	2	..	..	84	..	39	2
2.6—Cotton textiles	Total .	42	6	..	..	3	2	39	4
	Rural .	34	6	..	..	2	2	32	4
	Urban .	8	..	..	..	1	..	7	..
Rural—93	. . . .	1	..	..	..	1	..	..	..
Rural—94	. . . .	33	3	..	..	1	..	32	3
Rural—95	. . . .	..	3	..	..	..	2	..	1
Urban—37	. . . .	5	..	..	..	..	..	5	..
Urban—38	. . . .	3	..	..	..	1	..	2	..

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract		Persons following the occupation as								
		Total		Employers		Employees		Independent workers		
		Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9		
2.7—Wearing apparel (except footwear) and made-up textile goods	Total .	971	95	17	..	145	8	809	87	
	Rural .	383	40	..	..	29	2	354	47
	Urban .	588	46	17	..	116	6	455	40	
	Rural—92	185	32	..	..	..	..	185	32
	Rural—93	78	12	..	..	1	..	77	12
	Rural—94	63	2	..	..	11	2	52	..
	Rural—95	57	3	..	..	17	..	40	3
	Urban—37	441	44	17	..	92	5	332	30	
	Urban—38	147	2	..	..	24	1	123	1
	2.8—Textile Industries otherwise unclassified	Total .	70	82	58	15	12	67
Rural .		..	1	..	..	..	..	..	1
Urban .		70	81	..	..	58	15	12	66
Rural—93 . . . . .		..	1	..	..	..	..	..	1
Urban—37		52	80	..	..	41	15	11	65
Urban—38		18	1	..	..	17	..	1	1
2.9—Leather, leather products and footwear		Total .	382	3	2	..	70	1	310	2
		Rural .	87	1	5	..	82	1
		Urban .	295	2	2	..	65	1	228	1
		Rural—92	53	1	53	1
	Rural—93	20	..	..	..	..	..	20	..
	Rural—94	5	..	..	..	..	..	5	..
	Rural—95	9	..	..	..	5	..	4	..
	Urban—37	208	1	2	..	54	1	152	..	
	Urban—38	87	1	..	..	11	..	76	1
	Division 3—Processing and Manufacture—Metals, Chemicals and Products thereof	Total .	1,219	24	4	..	812	18	403	6
Rural .		701	20	..	..	514	14	187	6
Urban .		518	4	4	..	98	4	216	..	
Rural—92		181	3	..	..	119	..	62	3
Rural—93		394	10	..	..	324	10	70	..
Rural—94		76	5	..	..	57	2	19	3
Rural—95		50	2	..	..	14	2	36	..
Urban—37		240	4	..	..	94	4	146	..
Urban—38		278	..	4	..	204	..	70	..	
3.0—Manufacture of metal products, otherwise unclassified		Total .	407	12	52	6	355	6
	Rural .	206	8	..	..	22	2	184	6
	Urban .	201	4	..	..	30	4	171	..
	Rural—92	63	3	..	..	1	..	62	3
	Rural—93	72	1	..	..	2	1	70	..
	Rural—94	34	3	..	..	15	..	19	3
	Rural—95	37	1	..	..	4	1	33	..
	Urban—37	146	4	..	..	21	4	125	..
	Urban—38	55	..	..	..	9	..	46	..
	3.3—Transport Equipment	Total .	795	11	4	..	743	11	48	..
Rural .		494	11	..	..	491	11	3	..
Urban .		301	..	4	..	252	..	45	..	
Rural—92		117	..	..	..	117	..	..	..
Rural—93		322	9	..	..	322	9	..	..
Rural—94		42	2	..	..	42	2	..	..
Rural—95		13	..	..	..	10	..	3	..
Urban—37		93	..	..	..	72	..	21	..
Urban—38		208	..	4	..	180	..	24	..	

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract	Persons following the occupation as								
	Total		Employers		Employees		Independent workers		
	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	
3.4—Electrical machinery, apparatus, appliances and supplies	Total .	1	..	..	..	1	..	..	..
	Rural .	..	..	..	..	..	..	..	..
	Urban .	1	..	..	..	1	..	..	..
Urban—37		1	..	..	..	1	..	..	..
3.5—Machinery (other than electrical machinery) includ- ing Engineering Workshops	Total .	1	1	..	..	1	1	..	..
	Rural .	1	1	..	..	1	1	..	..
	Urban .	..	..	..	..	..	..	..	..
Rural—92		1	..	..	..	1	..	..	..
Rural—93		..	..	..	..	..	..	..	..
Rural—94		..	..	..	..	..	..	..	..
Rural—95		..	1	..	..	..	1	..	..
Urban—37		..	..	..	..	..	..	..	..
Urban—38		..	..	..	..	..	..	..	..
3.8—Manufacture of chemical products otherwise unclassi- fied	Total .	15	..	..	..	15	..	..	..
	Rural .	..	..	..	..	..	..	..	..
	Urban .	15	..	..	..	15	..	..	..
Rural—92		..	..	..	..	..	..	..	..
Rural—93		..	..	..	..	..	..	..	..
Rural—94		..	..	..	..	..	..	..	..
Rural—95		..	..	..	..	..	..	..	..
Urban—37		..	..	..	..	..	..	..	..
Urban—38		15	..	..	..	15	..	..	..
Division 4—Processing and Manufacture—Not elsewhere specified	Total .	2,608	68	5	..	734	11	1,869	57
	Rural .	1,058	53	1	..	312	8	745	45
	Urban .	1,550	15	4	..	422	3	1,124	12
Rural—92		348	17	..	..	135	1	213	16
Rural—93		273	11	..	..	..	1	273	10
Rural—94		282	21	1	..	92	6	189	15
Rural—95		155	4	..	..	85	..	70	4
Urban—37		562	13	2	..	194	3	366	10
Urban—38		988	2	2	..	228	..	758	2
4.0—Manufacturing Industries otherwise unclassified	Total .	419	22	..	..	45	2	374	20
	Rural .	139	14	..	..	1	..	138	14
	Urban .	280	8	..	..	44	2	236	6
Rural—92		68	4	..	..	..	..	68	4
Rural—93		17	7	..	..	..	..	17	7
Rural—94		43	2	..	..	1	..	42	2
Rural—95		11	1	..	..	..	..	11	1
Urban—37		148	8	..	..	16	..	132	6
Urban—38		132	..	..	..	28	..	104	..
4.2—Bricks, tiles and other structural clay products	Total .	76	..	..	..	7	..	69	..
	Rural .	2	..	..	..	..	..	2	..
	Urban .	74	..	..	..	7	..	67	..
Rural—94		2	..	..	..	..	..	2	..
Urban—88		74	..	..	..	7	..	67	..
4.4—Non-metallic mineral products	Total .	39	10	..	..	3	2	36	8
	Rural .	29	5	..	..	3	1	26	4
	Urban .	10	5	..	..	..	1	10	4
Rural—92		6	1	..	..	..	1	6	..
Rural—93		4	..	..	..	..	..	4	..
Rural—94		19	4	..	..	3	..	16	4
Urban—37		4	5	..	..	..	1	4	4
Urban—38		6	..	..	..	..	..	6	..

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract		Persons following the occupation as							
		Total		Employers		Employees		Independent workers	
		Males	Females	Males	Females	Males	Females	Males	Females
1		2	3	4	5	6	7	8	9
4.6—Wood and wood products other than furniture and fixtures	Total .	1,992	36	2	..	612	7	1,378	29
	Rural .	878	34	1	..	303	7	574	27
	Urban .	1,114	2	1	..	309	..	804	2
	Rural—92	269	12	..	..	130	..	139	12
	Rural—93	250	4	..	..	..	1	250	3
	Rural—94	217	15	1	..	88	6	128	9
	Rural—95	142	3	..	..	85	..	57	3
	Urban—37	355	..	..	..	131	..	224	..
	Urban—38	759	2	1	..	178	..	580	2
4.7—Furniture and fixtures	Total .	1	..	..	..	1	..	..	..
	Rural .	..	..	..	..	..	..	..	..
	Urban .	1	..	..	..	1	..	..	..
4.9—Printing and Allied Industries	Urban—37	1	..	..	..	1	..	..	..
	Total .	81	..	3	..	66	..	12	..
	Rural .	10	..	..	..	5	..	5	..
	Urban .	71	..	3	..	61	..	7	..
	Rural—92	5	..	..	..	5	..	..	..
	Rural—93	2	..	..	..	..	..	2	..
	Rural—94	1	..	..	..	..	..	1	..
	Rural—95	2	..	..	..	..	..	2	..
	Urban—37	54	..	2	..	46	..	6	..
Division 5—Construction and Utilities	Urban—38	17	..	1	..	15	..	1	..
	Total .	4,718	1,895	..	..	3,350	731	1,368	1,164
	Rural .	1,522	754	..	..	1,282	379	240	375
	Urban .	3,196	1,141	..	..	2,068	352	1,128	789
	Rural—92	336	398	..	..	257	135	79	263
	Rural—93	262	182	..	..	232	124	30	58
	Rural—94	358	4	..	..	313	4	45	..
	Rural—95	566	170	..	..	480	116	86	54
	Urban—37	2,772	1,121	..	..	1,801	332	971	789
5.0—Construction and maintenance of works—otherwise unclassified	Urban—38	424	20	..	..	267	20	157	..
	Total .	463	..	..	..	11	..	452	..
	Rural .	15	..	..	..	3	..	12	..
	Urban .	448	..	..	..	8	..	440	..
	Rural—95	15	..	..	..	3	..	12	..
	Urban—37	446	..	..	..	6	..	440	..
	Urban—38	2	..	..	..	2	..	..	..
5.1—Construction and maintenance—Buildings	Total .	1,643	1,535	..	..	1,024	448	619	1,087
	Rural .	510	526	..	..	379	205	131	321
	Urban .	1,133	1,009	..	..	645	243	488	766
	Rural—92	98	391	..	..	62	128	36	263
	Rural—93	48	135	..	..	31	77	17	58
	Rural—94	123	..	..	..	82	..	41	..
	Rural—95	241	..	..	..	204	..	37	..
	Urban—37	987	1,004	..	..	579	238	408	766
	Urban—38	146	5	..	..	66	5	80	..

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract	1	Persons following the occupation as							
		Total		Employers		Employees		Independent workers	
		Males	Females	Males	Females	Males	Females	Males	Females
	2	3	4	5	6	7	8	9	
5.2—Construction and maintenance—Roads, Bridges and other Transport Works	{ Total .	1,691	315	.	.	1,419	238	272	77
	{ Rural .	738	216	.	..	641	162	97	54
	{ Urban .	953	99	.	.	778	76	175	23
Rural—92	.	79	..	..	..	36	..	43	..
Rural—93	.	154	47	.	.	141	47	13	..
Rural—94	.	223	.	.	.	219	..	4	..
Rural—95	.	282	169	.	.	245	115	37	54
Urban—37	.	835	99	..	..	663	76	172	23
Urban—38	.	118	..	..	..	115	..	3	..
5.3—Construction and maintenance—Telegraph and Telephone Lines	{ Total .	55	..	..	..	55	..	..	..
	{ Rural .	11	..	..	..	11	..	..	..
	{ Urban .	44	..	.	.	44	..	..	..
Rural—94	.	2	..	..	..	2	..	..	..
Rural—95	.	9	..	..	..	9	..	..	..
Urban—37	.	44	..	..	..	44	..	..	..
5.5—Works and Services—Electric Power and Gas supply	{ Total .	127	..	..	..	112	..	15	..
	{ Rural .	23	..	..	..	23	..	..	..
	{ Urban .	104	..	..	..	89	..	15	..
Rural—92	.	10	..	.	..	10	..	..	..
Rural—93	.	11	..	..	..	11	..	..	..
Rural—94	.	2	..	..	..	2	..	..	..
Urban—37	.	65	..	..	..	55	..	10	..
Urban—38	.	39	..	..	..	34	..	5	..
5.6—Works and Services—Domestic and Industrial water supply	{ Total .	46	..	..	..	43	..	3	..
	{ Rural .	6	..	..	..	6	..	..	..
	{ Urban .	40	..	..	..	37	..	3	..
Rural—94	.	1	..	..	..	1	..	..	..
Rural—95	.	5	..	..	..	5	..	..	..
Urban—37	.	40	..	..	..	37	..	3	..
5.7—Sanitary Works and Services—Including scavengers	{ Total .	693	45	..	..	686	45	7	..
	{ Rural .	219	12	..	..	219	12	..	..
	{ Urban .	474	33	..	..	467	33	7	..
Rural—92	.	149	7	..	..	149	7	..	..
Rural—93	.	49	..	..	..	49	..	..	..
Rural—94	.	7	4	..	..	7	4	..	..
Rural—95	.	14	1	..	..	14	1	..	..
Urban—37	.	417	18	..	..	417	18	..	..
Urban—38	.	57	15	..	..	50	15	7	..
Division 6—Commerce	{ Total .	9,349	830	105	18	1,836	95	7,408	717
	{ Rural .	2,706	346	37	2	417	19	2,252	325
	{ Urban .	6,643	484	68	16	1,419	76	5,156	392
Rural—92	.	904	144	15	..	135	2	814	142
Rural—93	.	331	88	9	..	82	..	240	88
Rural—94	.	981	61	13	..	127	3	841	58
Rural—95	.	430	53	..	2	73	14	357	37
Urban—37	.	2,947	412	34	14	765	72	2,148	326
Urban—38	.	3,696	72	34	2	654	4	3,008	66

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract		Persons following the occupation as									
		Total		Employers		Employees		Independent workers			
		Males	Females	Males	Females	Males	Females	Males	Females		
1		2	3	4	5	6	7	8	9		
6.0—Retail trade otherwise unclassified	{	Total .	2,309	104	36	1	580	39	1,693	64	
		Rural .	307	11	16	..	46	..	245	11	
		Urban .	2,002	93	20	1	534	39	1,448	53	
	Rural—92	..	99	6	11	..	11	..	77	6	
	Rural—93	..	42	1	4	..	13	..	25	1	
	Rural—94	..	147	4	1	..	17	..	129	4	
	Rural—95	..	19	..	..	..	5	..	14	..
	Urban—37	..	671	88	6	..	184	38	481	50	
	Urban—38	..	1,331	5	14	1	350	1	967	3	
	6.1—Retail trade in foodstuffs (including beverages and narcotics)	{	Total .	4,954	607	49	2	791	46	4,114	559
Rural .			1,951	299	16	..	261	14	1,674	285	
Urban .			3,003	308	33	2	530	32	2,440	274	
Rural—92		..	694	132	1	..	101	2	589	130	
Rural—93		..	252	80	5	..	58	..	189	80	
Rural—94		..	724	48	10	..	99	2	615	46	
Rural—95		..	281	39	..	..	..	10	281	29
Urban—37		..	1,552	265	18	2	384	29	1,150	234	
Urban—38		..	1,451	43	15	..	146	3	1,290	40	
6.2—Retail trade in fuel (including petrol)		{	Total	235	30	60	3	175	27
	Rural		12	4	..	..	3	2	9	2
	Urban		223	26	..	..	57	1	166	25
	Rural—92	..	4	..	..	..	..	4	..	
	Rural—94	..	6	..	..	3	..	3	..	
	Rural—95	..	2	4	..	..	2	2	2	
	Urban—37	..	38	23	..	..	8	1	30	22
	Urban—38	..	185	3	..	..	49	..	136	3
	6.3—Retail trade in textile and leather goods	{	Total .	604	13	7	1	71	..	526	12
			Rural .	272	8	5	..	14	..	253	8
Urban .			332	5	2	1	57	..	273	4	
Rural—92		..	140	3	3	..	10	..	127	3	
Rural—93		..	16	..	..	..	3	..	13	..
Rural—94		..	73	3	2	..	1	..	70	3	
Rural—95		..	43	2	..	..	..	..	43	2
Urban—37		..	130	1	2	..	21	..	107	1	
Urban—38		..	202	4	..	1	36	..	166	3	
6.4—Wholesale trade in foodstuffs		{	Total .	302	6	1	..	36	..	265	6
	Rural .		4	2	..	..	..	..	4	2
	Urban .		298	4	1	..	36	..	261	4	
	Rural—94	..	4	2	..	..	..	4	2	
	Urban—37	..	13	..	1	..	8	..	4	..	
	Urban—38	..	285	4	..	..	28	..	257	4
6.5—Wholesale trade in commodities other than foodstuffs	{	Total .	540	24	10	..	124	3	406	21	
		Rural .	66	2	..	..	14	..	52	2
		Urban .	474	22	10	..	110	3	354	19	
	Rural—92	..	11	..	..	..	2	..	9	..
	Rural—93	..	15	1	..	..	5	..	10	1
	Rural—94	..	24	1	..	..	6	..	18	1
	Rural—95	..	16	..	..	..	1	..	15	..
	Urban—37	..	402	22	6	..	98	3	308	19	
	Urban—38	..	72	..	4	..	22	..	46	..	

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract		Persons following the occupation as								
		Total		Employers		Employees		Independent workers		
		Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9		
6.6—Real Estate	{ Total Rural Urban	146	35	1	12	4	..	141	23	
		5	10	..	..	..	..	5	10
		141	25	1	12	4	..	136	13	
	Rural—02	1	3	..	..	..	..	1	3
	Rural—03	3	5	..	..	..	..	3	5
	Rural—04	1	2	..	..	..	..	1	2
	Urban—37	21	12	..	12	1	..	20	..	
	Urban—38	120	13	1	..	3	..	116	13	
6.7—Insurance	{ Total Rural Urban	6	..	..	..	4	..	2	..
		1	..	..	..	1	..	..	..
		5	..	..	..	3	..	2	..
	Rural—03	1	..	..	..	1	..	..	..
Urban—38	5	..	..	..	3	..	2	..	
6.8—Moneylending, banking and other financial business	{ Total Rural Urban	253	11	1	2	166	4	86	5	
		88	10	..	2	78	3	10	5	
		165	1	1	..	88	1	76	..	
	Rural—02	15	..	..	..	8	..	7	..
	Rural—03	2	1	..	..	2	..	..	1
	Rural—04	2	1	..	..	1	1	1	..
	Rural—05	69	8	..	2	67	2	2	4	
	Urban—37	120	1	1	..	71	1	48	..	
	Urban—38	45	..	..	..	17	..	28	..
	Division 7—Transport, Storage and Communications	{ Total Rural Urban	5,129	77	10	4	4,557	48	562	25
			1,889	23	1,719	17	170	6
3,240			54	10	4	2,838	31	392	19	
Rural—02		305	1	..	..	251	1	54	..
Rural—03		597	2	..	..	574	1	23	1
Rural—04		812	11	..	..	799	11	13	..
Rural—05		175	9	..	..	95	4	80	5
Urban—37		1,166	35	6	..	966	18	194	17	
Urban—38		2,074	19	4	4	1,872	13	198	2	
7.0—Transport and commun- ications otherwise unclassified and incidental services		{ Total Rural Urban	55	2	55	1	..	1
			29	1	29	1
	26		1	..	..	26	..	..	1
	Rural—02	13	..	..	..	13	..	..	..
	Rural—03	1	..	..	..	1	..	..	..
	Rural—05	15	1	..	..	15	1	..	..
	Urban—37	26	..	..	..	26	..	..	..
	Urban—38 . . . . .	..	1	..	..	..	..	..	1
7.1—Transport by road	{ Total Rural Urban	1,720	33	10	4	1,202	5	508	24	
		519	10	..	..	349	4	170	6
		1,201	23	10	4	853	1	338	18	
	Rural—02	180	..	..	..	126	..	54	..
	Rural—03	69	1	..	..	46	..	23	1
	Rural—04	129	1	..	..	116	1	13	..
	Rural—05	141	8	..	..	61	3	80	5
	Urban—37	487	18	6	..	341	1	140	17	
	Urban—38	714	5	4	4	512	..	198	1	
	7.2—Transport by water	{ Total Rural Urban	4	4
			2	2
2			..	..	..	2	..	..	..
Rural—05		2	..	..	..	2	..	..	..
Urban—37		2	..	..	..	2	..	..	..

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract	Persons following the occupation as							
	Total		Employers		Employees		Independent workers	
	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9
7.3—Transport by Air	Total	171	..	..	117	..	54	..
	Rural	87	..	..	87	..	..	..
	Urban	84	..	..	30	..	54	..
Rural—04		87	..	..	87	..	..	..
Urban—37		55	..	..	1	..	54	..
Urban—38		29	..	..	29	..	..	..
7.4—Railway transport	Total	2,692	35	..	2,692	35	..	..
	Rural	1,144	10	..	1,144	10	..	..
	Urban	1,548	25	..	1,548	25	..	..
Rural—02		43	1	..	43	1	..	..
Rural—93		507	1	..	507	1	..	..
Rural—94		586	8	..	586	8	..	..
Rural—95		8	..	..	8	..	..	..
Urban—37		363	14	..	363	14	..	..
Urban—38		1,185	11	..	1,185	11	..	..
7.5—Storage and warehousing	Total	20	..	..	20	..	..	..
	Rural . . . . .	..	..	..	..	..	..	..
	Urban	20	..	..	20	..	..	..
Urban—38		20	..	..	20	..	..	..
7.6—Postal Services	Total	341	5	..	341	5	..	..
	Rural	92	2	..	92	2	..	..
	Urban	249	3	..	249	3	..	..
Rural—02		61	..	..	61	..	..	..
Rural—93		19	..	..	19	..	..	..
Rural—94		4	2	..	4	2	..	..
Rural—95		8	..	..	8	..	..	..
Urban—37		157	2	..	157	2	..	..
Urban—38		92	1	..	92	1	..	..
7.7—Telegraph Services	Total	42	1	..	42	1	..	..
	Rural	7	..	..	7	..	..	..
	Urban	35	1	..	35	1	..	..
Rural—94		6	..	..	6	..	..	..
Rural—95		1	..	..	1	..	..	..
Urban—37		27	..	..	27	..	..	..
Urban—38		8	1	..	8	1	..	..
7.8—Telephone Services	Total	74	1	..	74	1	..	..
	Rural	8	..	..	8	..	..	..
	Urban	66	1	..	66	1	..	..
Rural—02		8	..	..	8	..	..	..
Urban—37		41	1	..	41	1	..	..
Urban—38		25	..	..	25	..	..	..
7.9—Wireless Services	Total	10	..	..	10	..	..	..
	Rural	1	..	..	1	..	..	..
	Urban	9	..	..	9	..	..	..
Rural—93		1	..	..	1	..	..	..
Urban—37		8	..	..	8	..	..	..
Urban—38		1	..	..	1	..	..	..

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract		Persons following the occupation as							
		Total		Employers		Employees		Independent workers	
		Males	Females	Males	Females	Males	Females	Males	Females
1		2	3	4	5	6	7	8	9
Division 8—Health, Education and Public Administration	{ Total	5,033	499	..	4	5,498	480	135	15
	{ Rural	2,497	202	..	4	2,472	191	25	7
	{ Urban	3,136	297	..	..	3,026	289	110	8
	Rural—92	1,393	63	..	..	1,384	63	9	..
	Rural—93	293	24	..	..	291	22	2	2
	Rural—94	358	26	..	4	344	18	14	1
	Rural—95	453	89	..	..	453	88	..	1
	Urban—37	2,228	231	..	..	2,183	229	45	2
	Urban—38	908	66	..	..	843	60	65	6
8-1—Medical and other Health Services	{ Total	696	170	..	4	573	155	123	11
	{ Rural	325	90	..	4	305	81	20	5
	{ Urban	371	80	..	..	268	74	103	6
	Rural—92	127	31	..	..	119	31	8	..
	Rural—93	63	14	..	..	63	13	..	1
	Rural—94	106	15	..	4	94	7	12	4
	Rural—95	29	30	..	..	29	30	..	..
	Urban—37	215	69	..	..	175	69	40	..
	Urban—38	156	11	..	..	93	5	63	6
8-2—Educational Services and Research	{ Total	915	239	..	..	903	235	12	4
	{ Rural	463	93	..	..	458	91	5	2
	{ Urban	452	146	..	..	445	144	7	2
	Rural—92	197	22	..	..	196	22	1	..
	Rural—93	108	8	..	..	106	7	2	1
	Rural—94	76	4	..	..	74	4	2	..
	Rural—95	82	59	..	..	82	58	..	1
	Urban—37	334	126	..	..	329	124	5	2
	Urban—38	118	20	..	..	116	20	2	..
8-4—Police (other than village watchmen)	{ Total	819	6	..	..	819	6	..	..
	{ Rural	166	1	..	..	166	1	..	..
	{ Urban	653	5	..	..	653	5	..	..
	Rural—92	62	..	..	..	62	..	..	..
	Rural—93	16	1	..	..	16	1	..	..
	Rural—94	42	..	..	..	42	..	..	..
	Rural—95	46	..	..	..	46	..	..	..
	Urban—37	527	..	..	..	527	..	..	..
	Urban—38	126	5	..	..	126	5	..	..
8-5—Village officers and servants, including village watchmen	{ Total	89	5	..	..	89	5	..	..
	{ Rural	37	5	..	..	37	5	..	..
	{ Urban	52	..	..	..	52	..	..	..
	Rural—92	..	5	..	..	..	5	..	..
	Rural—93	5	..	..	..	5	..	..	..
	Rural—94	28	..	..	..	28	..	..	..
	Rural—95	4	..	..	..	4	..	..	..
	Urban—37	2	..	..	..	2	..	..	..
	Urban—38	50	..	..	..	50	..	..	..
8-6—Employees of Municipalities and Local Boards (but not including persons classifiable under any other division or subdivision)	{ Total	443	16	..	..	443	16	..	..
	{ Rural	118	1	..	..	118	1	..	..
	{ Urban	325	15	..	..	325	15	..	..
	Rural—92	80	1	..	..	80	1	..	..
	Rural—93	13	..	..	..	13	..	..	..
	Rural—94	3	..	..	..	3	..	..	..
	Rural—95	22	..	..	..	22	..	..	..
	Urban—37	295	15	..	..	295	15	..	..
	Urban—38	30	..	..	..	30	..	..	..

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract		Persons following the occupation as							
		Total		Employers		Employees		Independent workers	
		Males	Females	Males	Females	Males	Females	Males	Females
1		2	3	4	5	6	7	8	9
8-7—Employees of State Governments (but not including persons classifiable under any other division or subdivision)	Total .	1,104	29	..	..	1,104	29	..	..
	Rural .	428	8	..	..	428	8	..	..
	Urban .	676	21	..	..	676	21	..	..
	Rural—92	202	1	..	..	202	1	..	..
	Rural—93	26	..	..	..	26	..	..	..
	Rural—94	94	7	..	..	94	7	..	..
	Rural—95	106	..	..	..	106	..	..	..
	Urban—37	312	5	..	..	312	5	..	..
	Urban—38	364	16	..	..	364	16	..	..
8-8—Employees of the Union Government (including persons classifiable under subdivision 8-3 but not including persons classifiable under any other division or subdivision)	Total .	1,508	33	..	..	1,508	33	..	..
	Rural .	939	4	..	..	939	4	..	..
	Urban .	569	29	..	..	569	29	..	..
	Rural—92	724	3	..	..	724	3	..	..
	Rural—93	59	1	..	..	59	1	..	..
	Rural—94	9	..	..	..	9	..	..	..
	Rural—95	147	..	..	..	147	..	..	..
	Urban—37	512	15	..	..	512	15	..	..
	Urban—38	57	14	..	..	57	14	..	..
8-9—Employees of Non-Indian Governments	Total .	59	1	..	..	59	1	..	..
	Rural .	21	..	..	..	21	..	..	..
	Urban .	38	1	..	..	38	1	..	..
	Rural—92	1	..	..	..	1	..	..	..
	Rural—93	3	..	..	..	3	..	..	..
	Rural—95	17	..	..	..	17	..	..	..
	Urban—37	31	1	..	..	31	1	..	..
	Urban—38	7	..	..	..	7	..	..	..
Division 9—Services not elsewhere specified	Total .	13,745	1,776	83	6	8,892	1,162	4,770	608
	Rural .	5,365	645	74	1	3,644	446	1,647	198
	Urban .	8,380	1,131	9	5	5,248	716	3,123	410
	Rural—92	2,350	278	72	..	1,480	193	798	85
	Rural—93	1,116	146	1	..	728	87	387	59
	Rural—94	1,163	99	1	..	964	87	198	12
	Rural—95	736	122	..	1	472	79	264	42
	Urban—37	4,449	912	..	4	2,906	612	1,543	296
	Urban—38	3,931	219	9	1	2,342	104	1,580	114
9-0—Services otherwise classified	Total .	6,062	501	75	..	2,976	198	3,011	303
	Rural .	1,931	149	73	..	818	69	1,040	80
	Urban .	4,131	352	2	..	2,158	129	1,971	223
	Rural—92	929	58	72	..	294	23	563	35
	Rural—93	632	74	1	..	363	40	268	34
	Rural—94	168	7	..	..	113	3	55	4
	Rural—95	202	10	..	..	48	3	154	7
	Urban—37	1,651	283	..	..	774	92	877	191
	Urban—38	2,480	69	2	..	1,384	37	1,094	32
9-1—Domestic services (but not including services rendered by members of family households to one another)	Total .	5,343	931	..	..	5,340	931	3	..
	Rural .	2,701	367	..	..	2,701	367	..	..
	Urban .	2,642	564	..	..	2,639	564	3	..
	Rural—92	1,129	169	..	..	1,129	169	..	..
	Rural—93	361	46	..	..	361	46	..	..
	Rural—94	789	78	..	..	789	78	..	..
	Rural—95	422	74	..	..	422	74	..	..
	Urban—37	1,926	504	..	..	1,926	504	..	..
	Urban—38	716	60	..	..	713	60	3	..

**TABLE 1.11—ECONOMIC TABLE III—EMPLOYERS, EMPLOYEES AND
INDEPENDENT WORKERS IN INDUSTRIES AND SERVICES
BY DIVISIONS AND SUBDIVISIONS—*contd.***

Division and Subdivision of Industries and Services and Tract	Persons following the occupation as							
	Total		Employers		Employees		Independent workers	
	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9
9.2—Barbers and beauty shops	Total .	434	1	..	53	..	381	1
	Rural .	180	1	..	19	..	161	1
	Urban .	254	..	..	34	..	220	..
Rural—92	..	53	..	..	1	..	52	..
Rural—93	..	33	..	..	..	..	33	..
Rural—94	..	84	1	..	17	..	67	1
Rural—95	..	10	..	..	1	..	9	..
Urban—37	..	93	..	..	1	..	92	..
Urban—38	..	161	..	..	33	..	128	..
9.3—Laundries and Laundry Services	Total .	289	6	1	88	2	201	3
	Rural .	136	2	1	45	1	91	..
	Urban .	153	4	..	43	1	110	3
Rural—92	..	74	..	..	37	..	37	..
Rural—93	..	22	1	..	1	1	21	..
Rural—94	..	25	..	..	7	..	18	..
Rural—95	..	15	1	1	..	..	15	..
Urban—37	..	101	3	..	32	..	69	3
Urban—38	..	52	1	..	11	1	41	..
9.4—Hotels, restaurants and eating houses	Total .	754	216	7	133	4	614	208
	Rural .	277	117	1	24	1	252	116
	Urban .	477	99	6	109	3	362	92
Rural—92	..	117	51	..	2	1	115	50
Rural—93	..	42	25	..	1	..	41	25
Rural—94	..	56	6	1	21	..	34	6
Rural—95	..	62	35	..	..	..	62	35
Urban—37	..	199	87	3	..	..	199	84
Urban—38	..	278	12	6	109	3	163	8
9.5—Recreation Services	Total .	103	83	..	70	8	33	75
	Rural .	13	5	..	7	5	6	..
	Urban .	90	78	..	63	3	27	75
Rural—92	..	3	..	..	3	..	..	..
Rural—94	..	10	5	..	4	5	6	..
Urban—37	..	74	3	..	53	2	21	1
Urban—38	..	16	75	..	10	1	6	74
9.6—Legal and business services	Total .	120	8	..	73	8	47	..
	Rural .	3	1	..	3	1	..	..
	Urban .	117	7	..	70	7	47	..
Rural—92	..	2	..	..	2	..	..	..
Rural—95	..	1	1	..	1	1	..	..
Urban—37	..	51	6	..	33	6	18	..
Urban—38	..	66	1	..	37	1	29	..
9.7—Arts, letters and journalism	Total .	92	2	1	49	..	42	1
	Rural .	5	..	..	1	..	4	..
	Urban .	87	2	1	48	..	38	1
Rural—92	..	2	..	..	..	..	2	..
Rural—93	..	2	..	..	1	..	1	..
Rural—94	..	1	..	..	..	..	1	..
Urban—37	..	39	2	1	13	..	26	1
Urban—38	..	48	..	1	35	..	12	..
9.8—Religious, Charitable and Welfare Services	Total .	548	28	..	110	11	438	17
	Rural .	119	3	..	26	2	93	1
	Urban .	429	25	..	84	9	345	16
Rural—92	..	41	..	..	12	..	29	..
Rural—93	..	24	..	..	1	..	23	..
Rural—94	..	30	2	..	13	1	17	1
Rural—95	..	24	1	..	..	1	24	..
Urban—37	..	315	24	..	74	8	241	16
Urban—38	..	114	1	..	10	1	104	..

TABLE 1.11—ECONOMIC TABLE III—*concd.*
Abstract of persons subsisting on non-productive activity

District and Tract	Unclassifiable													
	Total		Persons living principally on income from non-agricultural property		Persons living principally on pensions, remittances, scholarships and funds		Inmates of jails, asylums, almshouses and recipients of doles		Beggars and Vagrants		All other persons living principally on income derived from non-productive activity			
	Persons	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
TOTAL POPULATION														
Total	1,009	835	174	12	..	593	47	..	..	218	127	12	..
Rural	502	449	53	2	..	319	22	..	..	116	31	12	..
Urban	507	386	121	10	..	274	25	..	..	102	96	..	..
Rural—92	271	246	25	2	..	224	17	..	..	20	8	..	..
Rural—93	114	113	1	..	..	74	1	..	..	36	..	3	..
Rural—94	92	70	22	..	..	2	..	..	..	59	22	9	..
Rural—95	25	20	5	..	..	19	4	..	..	1	1	..	..
Urban—37	440	331	109	6	..	240	23	..	..	85	86	..	..
Urban—38	67	55	12	4	..	34	2	..	..	17	10	..	..
DISPLACED POPULATION														
Total	16	9	7	4	..	3	..	..	..	2	7	..	..
Rural	7	3	4	..	..	1	..	..	..	2	4	..	..
Urban	9	6	3	4	..	2	..	..	..	..	3	..	..
Rural—94	7	3	4	..	..	1	..	..	..	2	4	..	..
Urban—38	9	6	3	4	..	2	..	..	..	..	3	..	..

TABLE 1.12—LIVELIHOOD DIVISIONS, SUBDIVISIONS AND GROUPS

(Relates to selfsupporting persons only)

I.C.E.C.
Group No.

DARJEELING DISTRICT

		1951		
LIVELIHOOD CLASS V		Total	Males	Females
(Production other than cultivation)		79,898	49,631	30,267
DIVISION O—PRIMARY INDUSTRIES NOT ELSEWHERE SPECIFIED		73,164	43,260	29,904
STOCK RAISING	0 1	540	525	15
Herdsman and shepherds	0 11	247	246	1
Breeders and keepers of cattle and buffaloes	0 12	188	176	12
Breeders and keepers of other large animals including transport animals	0 10	105	103	2
REARING OF SMALL ANIMALS AND INSECTS	0 2	19	18	1
Poultry farmers	0 21	19	18	1
Beekeepers	0 22	..	..	..
Silkworm rearers	0 23	..	..	..
Cultivators of Lac	0 24	..	..	..
Rearers of other small animals and insects	0 20	..	..	..
PLANTATION INDUSTRIES	0 3	70,054	40,644	29,410
Owners, managers and workers in —				
Tea plantation	0 31	64,278	36,967	27,311
Coffee plantation	0 32	..	..	..
Rubber plantation	0 33	..	..	..
All other plantations but not including the cultivation of special crops in conjunction with ordinary cultivation of field crops	0 30	5,776	3,677	2,099
FORESTRY AND COLLECTION OF PRODUCTS NOT ELSEWHERE SPECIFIED	0 4	2,503	2,025	478
Planting, replanting and conservation of forests (including forest officers, rangers and guards)	0 40	2,150	1,719	431
Charcoal burners	0 41	125	122	3
Collectors of forest produce and lac	0 42	192	156	36
Woodcutters	0 43	36	28	8
HUNTING (including trapping and Game Propagation)	0 5	2	2	..
FISHING	0 6	46	46	..
Fishing in sea and inland waters including the operation of fish farms and fish hatcheries	0 60	46	46	..
Gatherers of chanks and pearls	0 61	..	..	..
Gatherers of sea weeds, sea shells, sponges and other water products	0 62	..	..	..
DIVISION 1—MINING AND QUARRYING		380	377	3
NON-METALLIC MINING AND QUARRYING NOT OTHERWISE CLASSIFIED—including mining and quarrying of such materials as precious and semi-precious stones, asbestos, gypsum, sulphur, asphalt, bitumen	1 0	..	..	..
COAL MINING—Mines primarily engaged in the extraction of anthracite and of soft coals such as bituminous, sub-bituminous and lignite	1 1	380	377	3
IRON ORE MINING	1 2	..	..	..
METAL MINING EXCEPT IRON ORE MINING	1 3	..	..	..
Gold	1 31	..	..	..
Lead, silver and zinc	1 32	..	..	..
Manganese	1 33	..	..	..
Tin and wolfram	1 34	..	..	..
Other metallic minerals	1 30	..	..	..
CRUDE PETROLEUM AND NATURAL GAS—Oil Well and Natural Gas, well operations (including drilling) and oil or bituminous sand operations	1 4	..	..	..
STONE-QUARRYING, CLAY AND SAND PITS—Extraction from the earth of stone, clay, sand and other materials used in building or manufacture of cement	1 5	..	..	..
MICA	1 6	..	..	..
SALT, SALTPETRE AND SALINE SUBSTANCES	1 7	..	..	..

TABLE 1-12—LIVELIHOOD DIVISIONS, SUBDIVISIONS AND GROUPS—*contd.*

LIVELIHOOD CLASS V— <i>contd.</i>	I.C.E.C. Group No.	1951		
		Total	Males	Females
DIVISION 2—PROCESSING AND MANUFACTURE—FOOD-STUFFS, TEXTILES, LEATHER AND PRODUCTS THEREOF		2,435	2,167	268
FOOD INDUSTRIES OTHERWISE UNCLASSIFIED	2-0	61	57	4
Canning and preservation of fruits and vegetables	2-0	..	..	..
Canning and preservation of fish	2-02	..	..	..
Slaughter, preparation and preservation of meat	2-03	29	25	4
Other food industries	2-00	32	32	..
GRAINS AND PULSES	2-1	298	266	32
Hand pounders of rice and other persons engaged in manual dehussing and flour grinding	2-11	62	33	29
Millers of cereals and pulses	2-12	134	132	2
Grain parchers and makers of blended and prepared flour and other cereal and pulse preparations	2-13	102	101	1
Other processes of grains and pulses	2-10	..	..	..
VEGETABLE OIL AND DAIRY PRODUCTS	2-2	266	222	44
Vegetable oil pressers and refiners	2-21	20	20	..
Manufacturers of hydrogenated oils	2-22	..	..	..
Makers of butter, cheese, ghee and other dairy products	2-23	246	202	44
SUGAR INDUSTRIES	2-3	1	1	..
Gur manufacture	2-31	..	..	..
Other manufacturers and refining of raw sugar, syrup and granulated or clarified sugar from sugarcane or from sugar beets	2-30	1	1	..
BEVERAGES	2-4	17	17	..
Brewers and distillers	2-41	..	..	..
Toddy drawers	2-42	..	..	..
Ice-manufacturers	2-43	..	..	..
Manufacture of aerated and mineral waters and other beverages	2-40	17	17	..
TOBACCO	2-5	141	139	2
Manufacture of bidis	2-51	141	139	2
Manufacture of tobacco products (other than bidis) such as cigarettes, cigars, cheroots and snuff. Stemming, redrying and other operations connected with preparing raw leaf tobacco for manufacturing are also included	2-50	..	..	..
COTTON TEXTILES	2-6	48	42	6
Cotton ginning, cleaning and pressing	2-61	..	..	..
Cotton spinning, sizing and weaving	2-62	41	35	6
Cotton dyeing, bleaching, printing, preparation and sponging	2-63	7	7	..
WEARING APPAREL (EXCEPT FOOTWEAR) AND MADE-UP TEXTILE GOODS	2-7	1,066	971	95
Tailors, milliners, dress makers and darners	2-71	1,026	931	95
Manufacturers of hosiery, embroiderers, makers of crepe, lace and fringes	2-72	9	9	..
Fur dressers and dyers	2-73	..	..	..
Hat-makers and makers of other articles of wear from textiles	2-74	..	..	..
Manufacture of house furnishing of textiles	2-75	22	22	..
Tent makers	2-76	..	..	..
Makers of other made-up textile goods, including umbrellas	2-70	9	9	..
TEXTILE INDUSTRIES OTHERWISE UNCLASSIFIED	2-8	152	70	82
Jute pressing, baling, spinning and weaving	2-81	36	33	3
Woolen spinning, twisting and weaving	2-82	116	37	79
Silk reeling, spinning and weaving	2-83	..	..	..
Hemp and flax, spinning and weaving	2-84	..	..	..
Manufacture of rayon, weaving of rayon fabrics and production of staple fabric yarn	2-85	..	..	..
Manufacture of rope, twine, string and other related goods from cocoanut, aloes, straw, linseed and hair	2-86	..	..	..
All other (including insufficiently described) textile industries, including artificial leather and cloth	2-80	..	..	..
LEATHER, LEATHER PRODUCTS AND FOOTWEAR	2-9	385	382	3
Tanners and all other workers in leather	2-91	4	4	..
Cobblers and all other makers and repairers of boots, shoes, sandals and clogs	2-92	379	376	3
Makers and repairers of all other leather products	2-90	2	2	..
DIVISION 3—PROCESSING AND MANUFACTURE—METALS, CHEMICALS AND PRODUCTS THEREOF		1,243	1,219	24
MANUFACTURE OF METAL PRODUCTS, OTHERWISE UNCLASSIFIED	3-0	419	407	12
Blacksmiths and other workers in iron and makers of implements	3-01	343	333	10
Workers in copper, brass and bell metal	3-02	17	17	..
Workers in other metals	3-03	39	37	2

TABLE 1.12--LIVELIHOOD DIVISIONS, SUBDIVISIONS AND GROUPS—contd.

	I.C.E.C. Group No.	1951		
		Total	Males	Females
LIVELIHOOD CLASS V— <i>contd.</i>				
MANUFACTURE OF METAL PRODUCTS, OTHERWISE UNCLASSIFIED— <i>contd.</i>				
Cutlery and surgical and veterinary instrument makers	3-04	18	18	..
Workers in mints, die sinkers, etc.	3-05	..	..	..
Makers of arms, guns, etc., including workers in ordnance factories	3-06	2	2	..
IRON AND STEEL (BASIC MANUFACTURE)—Manufacture of iron and steel, including all processes such as smelting and refining; rolling and drawing; and alloying and the manufacture of castings, forgings and other basic forms of ferrous metals				
	3-1	..	..	..
NON-FERROUS METALS (BASIC MANUFACTURE)—Smelting and refining, rolling, drawing and alloying and the manufacture of castings, forgings and other basic forms of non-ferrous metals				
	3-2	..	..	..
TRANSPORT EQUIPMENT				
	3-3	806	795	11
Building and repairing of ships and boats	3-31	..	..	..
Manufacture, assembly and repair of Railway equipment, motor vehicles and bicycles	3-32	701	690	11
Manufacture of aircraft	3-33	..	..	..
Coach builders and makers of carriages, palki, rickshaw, etc., and wheelwrights	3-34	..	..	..
Manufacture of all other transport equipments	3-30	105	105	..
ELECTRICAL MACHINERY, APPARATUS, APPLIANCES AND SUPPLIES				
	3-4	1	1	..
Manufacture of electric lamps	3-41	..	..	..
Manufacture of electric fans and other accessories	3-42	..	..	..
Manufacture of electric wire and cable	3-43	..	..	..
Manufacture of electrical generating, transmission and distribution apparatus; electrical household appliances other than lights and fans; electrical equipment for motor vehicles, aircraft and railway locomotives and cars; communication equipment and related products, including radios, phonographs, electric batteries, X-Ray and therapeutic apparatus; electronic tubes, etc.	3-40	1	1	..
MACHINERY (OTHER THAN ELECTRICAL MACHINERY) INCLUDING ENGINEERING WORKSHOPS—Engineering workshops engaged in producing machine and equipment parts				
	3-5	2	1	1
BASIC INDUSTRIAL CHEMICALS, FERTILISERS AND POWER ALCOHOL				
	3-6	..	..	..
Manufacture of basic industrial chemicals such as acids, alkali salts	3-61	..	..	..
Dyes, explosives and fireworks	3-62	..	..	..
Synthetic resins and other plastic materials (including synthetic fibres and synthetic rubber)	3-63	..	..	..
Chemical fertilisers	3-64	..	..	..
Power Alcohol	3-65	..	..	..
MEDICAL AND PHARMACEUTICAL PREPARATIONS				
	3-7	..	..	..
MANUFACTURE OF CHEMICAL PRODUCTS OTHERWISE UNCLASSIFIED				
	3-8	15	15	..
Manufacture of perfumes, cosmetic and other toilet preparations	3-81	..	..	..
Soaps and other washing and cleaning compounds	3-82	15	15	..
Paints, varnishes and lacquers and polishes	3-83	..	..	..
Ink	3-84	..	..	..
Matches	3-85	..	..	..
Candle	3-86	..	..	..
Starch	3-87	..	..	..
Other chemical products	3-80	..	..	..
DIVISION 4—PROCESSING AND MANUFACTURE—NOT ELSEWHERE SPECIFIED				
		2,676	2,608	68
MANUFACTURING INDUSTRIES OTHERWISE UNCLASSIFIED				
	4-0	441	419	22
Manufacture of professional scientific and controlling instruments (but not including cutlery, surgical or veterinary instruments)	4-01	..	..	..
Photographic and optical goods	4-02	21	21	..
Repair and manufacture of watches and clocks	4-03	31	31	..
Workers in precious stones, precious metals and makers of jewellery and ornaments	4-04	372	350	22
Manufacture of musical instruments and appliances	4-05	7	7	..
Stationery articles other than paper and paper products	4-06	..	..	..
Makers of plastic and celluloid articles other than rayon	4-07	..	..	..
Sports goods makers	4-08	..	..	..
Toy makers	4-09	..	..	..
Other miscellaneous manufacturing industries, including bone, ivory, horn, shell, etc.	4-00	10	10	..

TABLE 1.12—LIVELIHOOD DIVISIONS, SUBDIVISIONS AND GROUPS—*contd.*

LIVELIHOOD CLASS V— <i>concl'd.</i>	I.C.E.C. Group No.	1951		
		Total	Males	Females
PRODUCTS OF PETROLEUM AND COAL	4·1	..	..	..
Kerosene and petroleum refineries	4·11	..	..	..
Coke ovens	4·12	..	..	..
Other manufactures of products from petroleum and coal	4·10	..	..	..
BRICKS, TILES AND OTHER STRUCTURAL CLAY PRODUCTS—Struc-				
tural clay products such as bricks, tiles, etc.	4·2	76	76	..
CEMENT—CEMENT PIPES AND OTHER CEMENT PRODUCTS—Manu-				
facture of cement, cement pipes and cement concrete products	4·3	..	..	..
NON-METALLIC MINERAL PRODUCTS	4·4	49	39	10
Potters and makers of earthen ware	4·41	48	39	9
Makers of porcelain and crockery	4·42	..	..	..
Glass bangles, glass beads, glass necklaces, etc.	4·43	..	..	..
Makers of other glass and crystal ware	4·44	..	..	..
Makers of other miscellaneous non-metallic mineral products; lime burners	4·40	1	..	1
RUBBER PRODUCTS	4·5	..	..	..
WOOD AND WOOD PRODUCTS OTHER THAN FURNITURE AND FIX-				
TURES	4·6	2,028	1,992	36
Sawyers	4·61	497	492	5
Carpenters, turners and joiners	4·62	1,466	1,440	26
Veneer and plywood makers, match veneer and splint makers	4·63	..	..	..
Basket makers	4·64	51	46	5
Other industries of woody materials, including leaves, but not including furniture or fixtures	4·60	14	14	..
FURNITURE AND FIXTURES—Manufacture of household, office, public				
building, professional and restaurant furniture; office and store				
fixtures, screens, shades, etc., regardless of material used	4·7	1	1	..
PAPER AND PAPER PRODUCTS—Manufacture of paper and paper board				
and articles of pulp, paper and paper board	4·8	..	..	..
PRINTING AND ALLIED INDUSTRIES	4·9	81	81	..
Printers, lithographers, engravers	4·91	68	68	..
Bookbinders and stitchers	4·92	13	13	..
LIVELIHOOD CLASS VI				
(Commerce)				
DIVISION 6—COMMERCE		10,179	9,319	830
RETAIL TRADE OTHERWISE UNCLASSIFIED	6·0	2,413	2,309	104
Hawkers and Street-Vendors otherwise unclassified	6·01	380	329	51
Dealers in drugs and other chemical stores	6·02	198	198	..
Publishers, Booksellers and Stationers	6·03	374	346	28
General Storekeepers, shopkeepers and persons employed in shops otherwise unclassified	6·00	1,461	1,436	25
RETAIL TRADE IN FOODSTUFFS (INCLUDING BEVERAGES AND NARCOTICS)	6·1	5,561	4,954	607
Retail dealers in grains and pulses; sweetmeats, sugar and spices; dairy products, eggs and poultry; animals for food; fodder for animals; other foodstuffs, vegetables and fruits	6·11	4,627	4,078	549
Vendors of wine, liquors, aerated waters and ice in shops	6·12	110	103	7
Retail dealers in tobacco, opium and ganja	6·13	78	74	4
Hawkers and street-vendors of drink and foodstuffs	6·14	260	252	8
Retail dealers in pan, bidis and cigarettes	6·15	486	447	39
RETAIL TRADE IN FUEL (INCLUDING PETROL)	6·2	265	235	30
Petroleum distributors	6·21	33	31	2
Retail dealers (including hawkers and street-vendors) in firewood, charcoal, coal, cow-dung and all other fuel except petroleum	6·20	232	204	28
RETAIL TRADE IN TEXTILE AND LEATHER GOODS—Retail trade (including hawkers and street-vendors) in piece goods, wool, cotton, silk hair, wearing apparel, made-up textile goods, skin, leather, furs, feathers, etc.	6·3	617	604	13
WHOLESALE TRADE IN FOODSTUFFS—Wholesale dealers in grains and pulses; sweetmeats, sugar and spices; dairy products, eggs and poultry; animals for food, fodder for animals, other foodstuffs, wholesale dealers in tobacco, opium and ganja	6·4	308	302	6
WHOLESALE TRADE IN COMMODITIES OTHER THAN FOODSTUFFS	6·5	504	540	24
REAL ESTATE—House and estate agents and rent collectors except agricultural land	6·6	181	146	35

TABLE 1.12—LIVELIHOOD DIVISIONS, SUBDIVISIONS AND GROUPS—*contd.*

LIVELIHOOD CLASS VI— <i>concl'd.</i>	I.C.E.C. Group No.	1951		
		Total	Males	Females
INSURANCE—Insurance carriers and all kinds of insurance agents and other persons connected with insurance business ..	6·7	6	6	..
MONEYLENDING, BANKING AND OTHER FINANCIAL BUSINESS—Officers, employees of joint stock banks and co-operative banks, Monims, agents or employees of indigenous banking firms, individual moneylenders, exchangers and exchange agents, money changers and brokers and their agents	6·8	264	253	11
LIVELIHOOD CLASS VII				
(Transport)	.	4,712	4,642	70
DIVISION 7—TRANSPORT, STORAGE AND COMMUNICATIONS ..	..	5,206	5,129	77
TRANSPORT AND COMMUNICATIONS OTHERWISE UNCLASSIFIED AND INCIDENTAL SERVICES	7·0	57	55	2
TRANSPORT BY ROAD—Owners, managers and employees connected with mechanically driven and other vehicles (excluding domestic servant), palki, etc., bearers and owners, pack elephant, camel, mule, ass and bullock owners and drivers, porters and messengers, persons engaged in road transport not otherwise classified, including freight, transport by road, the operation of fixed facilities for road transport such as toll roads, highway bridges, terminals and parking facilities	7·1	1,753	1,720	33
TRANSPORT BY WATER—Owners and employees, officers, mariners, etc., of ships plying on the high seas, ships and boats plying on inland and coastal waters, persons employed in harbours, docks, rivers and canals, including pilots, ship brokers	7·2	4	4	..
TRANSPORT BY AIR—Persons concerned with airfields and aircrafts other than construction of airfields and air ports	7·3	171	171	..
RAILWAY TRANSPORT—Railway employees of all kinds except those employed on construction works	7·4	2,727	2,692	35
LIVELIHOOD CLASS VIII				
(Other services and miscellaneous sources)	.	29,769	25,418	4,351
STORAGE AND WAREHOUSING—The operation of storage facilities such as warehouses, cold storage, safe deposits when such storage is offered as an independent service	7·5	20	20	..
POSTAL SERVICES	7·6	346	341	5
TELEGRAPH SERVICES	7·7	43	42	1
TELEPHONE SERVICES	7·8	75	74	1
WIRELESS SERVICES	7·9	10	10	..
DIVISION 8—CONSTRUCTION AND UTILITIES . . . . .	..	6,613	4,718	1,895
CONSTRUCTION AND MAINTENANCE OF WORKS OTHERWISE UNCLASSIFIED	5·0	463	463	..
CONSTRUCTION AND MAINTENANCE—BUILDINGS	5·1	3,178	1,643	1,535
Masons and bricklayers	5·11	437	437	..
Stone-cutters and dressers	5·12	60	60	..
Painters and decorators of house	5·13	45	45	..
Other persons engaged in the construction or maintenance of buildings other than buildings made of bamboo or similar materials	5·10	2,636	1,101	1,535
CONSTRUCTION AND MAINTENANCE—ROADS, BRIDGES AND OTHER TRANSPORT WORKS	5·2	2,006	1,691	315
CONSTRUCTION AND MAINTENANCE—TELEGRAPH AND TELEPHONE LINES	5·3	55	55	..
CONSTRUCTION AND MAINTENANCE OPERATIONS—IRRIGATION AND OTHER AGRICULTURAL WORKS	5·4	..	..	..
WORKS AND SERVICES—ELECTRIC POWER AND GAS SUPPLY	5·5	127	127	..
ELECTRIC SUPPLY	5·51	127	127	..
WORKS AND SERVICES—DOMESTIC AND INDUSTRIAL WATER SUPPLY	5·6	46	46	..
SANITARY WORKS AND SERVICES—INCLUDING SCAVENGERS	5·7	738	693	45

TABLE 1.12—LIVELIHOOD DIVISIONS, SUBDIVISIONS AND GROUPS—concl'd.

LIVELIHOOD CLASS VIII—concl'd.	I.C.E.C. Group No.	1951		
		Total	Males	Females
DIVISION 8—HEALTH, EDUCATION AND PUBLIC ADMINISTRATION		6,132	5,633	499
MEDICAL AND OTHER HEALTH SERVICES	8-1	866	806	170
Registered medical practitioners	8-11	257	252	5
Vaid, Hakims and other persons practising medicine without being registered	8-12	71	70	1
Dentists	8-13	14	14	..
Midwives	8-14	17	..	17
Vaccinators	8-15	11	11	..
Compounders	8-16	158	154	4
Nurses	8-17	111	2	109
All other persons employed in hospitals or other public or private establishments rendering medical or other health services; but not including scavengers or other sanitary staff	8-10	227	193	34
EDUCATIONAL SERVICES AND RESEARCH	8-2	1,154	915	239
Professors, lecturers, teachers, and research workers employed in Universities, Colleges and Research Institutions	8-21	705	656	49
All other professors, lecturers and teachers	8-22	401	217	184
Managers, clerks and servants of educational and research institutions, including Libraries and Museums, etc.	8-20	48	42	6
POLICE (OTHER THAN VILLAGE WATCHMEN)	8-4	825	819	6
VILLAGE OFFICERS AND SERVANTS, INCLUDING VILLAGE WATCHMEN	8-5	94	89	5
EMPLOYEES OF MUNICIPALITIES AND LOCAL BOARDS —(but not including persons classifiable under any other division or subdivision)	8-6	459	443	16
EMPLOYEES OF STATE GOVERNMENTS —(but not including persons classifiable under any other division or subdivision)	8-7	1,133	1,104	29
EMPLOYEES OF THE UNION GOVERNMENT —(including persons classifiable under subdivision 8-3 but not including persons classifiable under any other division or subdivision)	8-8	1,541	1,508	33
EMPLOYEES OF NON-INDIAN GOVERNMENTS	8-9	60	59	1
DIVISION 9—SERVICES NOT ELSEWHERE SPECIFIED		15,521	13,745	1,776
SERVICES OTHERWISE UNCLASSIFIED	9-0	6,563	6,062	501
DOMESTIC SERVICES (BUT NOT INCLUDING SERVICES RENDERED BY MEMBERS OF FAMILY HOUSEHOLDS TO ONE ANOTHER)	9-1	6,274	5,343	931
Private motor drivers and cleaners	9-11	198	153	45
Cooks	9-12	522	480	42
Gardeners	9-13	438	422	16
Other domestic servants	9-10	5,116	4,288	828
BARBERS AND BEAUTY SHOPS —Barbers, hair dressers and wig makers, tattooers, shampooers, bath houses	9-2	435	434	1
LAUNDRIES AND LAUNDRY SERVICES —Laundries and laundry services, washing and cleaning	9-3	295	289	6
HOTELS, RESTAURANTS AND EATING HOUSES	9-4	970	754	216
RECREATION SERVICES —Production and distribution of motion pictures and the operation of cinemas and allied services, managers and employees of theatres, opera companies, etc., musicians, actors, dancers, etc., conjurers, acrobats, reciters, exhibitors of curiosities and wild animals, radio broadcasting studios	9-5	186	103	83
LEGAL AND BUSINESS SERVICES	9-6	128	120	8
Lawyers of all kinds, including qazi's law agents and mukhtars	9-61	50	49	1
Clerks of lawyers, petition writers, etc.	9-62	22	22	..
Architects, Surveyors, Engineers and their employees (not being State Servants)	9-63	46	45	1
Public Scribes, Stenographers, Accountants, Auditors	9-64	1	1	..
Managers, clerks, servants and employees of Trade Associations, Chamber of Commerce, Board of Trade, Labour Organisation and similar organisation of employers and employees	9-65	9	3	6
ARTS, LETTERS AND JOURNALISM	9-71	94	92	2
Artists, sculptors and image makers	9-71	63	62	1
Authors, editors and journalists	9-72	3	3	..
Photographers	9-73	28	27	1
RELIGIOUS, CHARITABLE AND WELFARE SERVICES	9-8	576	548	28
Priests, Ministers, Monks, Nuns, Sadhus, Religious mendicants and other religious workers	9-81	545	518	27
Servants in religious edifices, burial and burning grounds, pilgrim conductors and circumcisers, etc.	9-82	14	14	..
Managers and employees of organisations and institutions rendering charitable and other welfare services	9-83	17	16	1
UNCLASSIFIABLE		1,009	835	174

TABLE 1.13—CII—LIVELIHOOD CLASSES BY AGE GROUPS
(i) SAMPLE POPULATION

Age Groups	Agricultural Classes										Non-Agricultural Classes											
	Persons (including dependants) who derive their principal means of livelihood from										Persons (including dependants) who derive their principal means of livelihood from											
	I		II		III		IV		V		VI		VII		VIII							
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F						
TOTAL	Persons	Males	Females	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
DARJEELING DISTRICT																						
All ages	Total	43,058	22,984	20,074	4,826	4,525	2,107	1,858	427	356	16	23	8,893	8,534	1,646	1,042	772	550	4,297	3,166		
	Rural	34,696	18,094	16,602	4,730	4,445	2,086	1,843	421	354	10	15	8,265	8,142	524	309	324	242	1,734	1,252		
	Urban	8,362	4,890	3,472	96	80	21	15	6	2	6	8	628	412	1,122	733	448	308	2,563	1,914		
0	Total	1,063	521	542	95	87	41	48	9	9	..	1	227	245	46	32	20	19	83	101		
	Rural	860	418	442	92	86	40	48	9	9	..	..	216	232	10	9	12	8	39	50		
	Urban	203	103	100	3	1	1	..	..	..	..	1	11	13	36	23	8	11	44	51		
1—4	Total	4,266	2,077	2,189	385	418	227	240	31	45	2	2	935	964	127	131	57	58	313	331		
	Rural	3,563	1,732	1,831	377	414	226	239	30	45	1	1	882	927	44	44	30	29	142	132		
	Urban	703	345	358	8	4	1	1	1	..	..	1	53	37	83	87	27	29	171	199		
5—14	Total	10,725	5,540	5,185	1,238	1,103	585	522	120	102	5	6	2,185	2,201	322	270	159	146	926	835		
	Rural	8,799	4,540	4,259	1,212	1,086	582	519	120	101	2	4	2,074	2,057	90	83	70	65	390	344		
	Urban	1,926	1,000	926	26	17	3	3	..	1	3	2	111	144	232	187	89	81	536	491		
15—24	Total	9,143	4,826	4,317	1,081	1,059	277	308	79	75	4	4	1,769	1,754	384	236	142	135	1,090	746		
	Rural	7,089	3,610	3,479	1,061	1,044	271	304	78	74	3	3	1,615	1,650	118	63	59	57	405	284		
	Urban	2,054	1,216	838	20	15	6	4	1	1	1	1	154	104	266	173	83	78	685	462		
25—34	Total	7,259	3,883	3,376	663	717	384	342	71	51	3	5	1,382	1,551	338	131	170	100	872	479		
	Rural	5,725	2,867	2,858	648	705	380	338	70	51	2	3	1,264	1,495	107	38	64	41	332	187		
	Urban	1,534	1,016	518	15	12	4	4	1	..	1	2	118	56	231	93	106	59	540	292		
35—44	Total	4,938	2,839	2,099	538	481	290	218	70	35	1	2	1,134	893	231	111	129	45	446	314		
	Rural	3,992	2,254	1,738	528	470	289	216	67	35	1	1	1,039	857	77	23	50	21	203	115		
	Urban	946	585	361	10	11	1	2	3	..	..	1	95	36	154	88	79	24	243	199		
45—54	Total	3,057	1,866	1,191	410	297	178	106	29	20	1	..	718	506	125	54	65	16	340	192		
	Rural	2,484	1,470	1,014	403	288	174	105	29	20	1	..	664	499	46	20	27	6	126	76		
	Urban	573	396	177	7	9	4	1	..	..	..	..	54	7	79	34	38	10	214	116		
55—64	Total	1,688	932	756	312	264	75	44	14	13	..	3	328	256	47	48	22	18	134	110		
	Rural	1,408	781	627	305	260	75	44	14	13	..	3	307	249	18	16	8	5	54	37		
	Urban	280	151	129	7	4	..	..	..	..	..	..	21	7	29	32	14	13	80	73		
65—74	Total	618	349	269	70	65	38	16	3	4	..	..	152	123	20	20	6	7	60	34		
	Rural	522	294	228	70	61	37	16	3	4	..	..	144	118	10	8	3	5	27	16		
	Urban	96	55	41	..	4	1	..	..	..	..	..	8	5	10	12	3	2	33	18		
75 and over	Total	290	146	144	33	34	12	14	1	2	..	..	63	61	4	3	1	6	32	24		
	Rural	247	125	122	33	31	12	14	1	2	..	..	60	58	2	1	1	5	16	11		
	Urban	43	21	22	..	3	..	..	..	..	..	..	3	3	2	2	..	1	16	13		
Age not stated	Total	11	5	6	1	..	..	..	..	..	..	..	..	..	2	6	1	..	1	..		
	Rural	7	3	4	1	..	..	..	..	..	..	..	..	..	2	4	..	..	..	..
	Urban	4	2	2	..	..	..	..	..	..	..	..	..	..	..	2	1	..	1	..		

TABLE 1.13—CII—LIVELIHOOD CLASSES BY AGE GROUPS—concl'd.

(ii) DISPLACED POPULATION

Age Groups	Agricultural Classes										Non-Agricultural Classes										
	TOTAL					Persons (including dependants) who derive their principal means of livelihood from					Persons (including dependants) who derive their principal means of livelihood from										
	Persons		Males	Females		I		II		III		IV		V		VI		VII		VIII	
	M	F			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20		
DARJEELING DISTRICT																					
All ages	Total	15,738	8,931	6,807	122	92	1,163	956	83	68	3	1	1,395	1,065	2,474	1,879	986	748	2,705	1,998	
	Rural	4,573	2,555	2,018	93	76	1,149	948	83	68	..	..	348	309	275	198	211	171	396	248
	Urban	11,165	6,376	4,789	29	16	14	6	..	..	3	1	1,047	756	2,199	1,681	775	577	2,309	1,750
0	Total	190	92	98	..	..	14	51	..	1	..	..	9	..	41	23	8	4	20	19
	Rural	85	28	57	..	..	14	51	..	1	..	..	6	..	3	2	1	..	4	3
	Urban	105	64	41	..	..	..	..	..	..	..	..	3	..	38	21	7	4	16	16
1-4	Total	1,031	495	536	7	6	98	85	5	5	..	..	89	97	88	138	53	49	155	156
	Rural	342	179	163	5	6	97	85	5	5	..	..	23	20	17	21	10	9	22	17
	Urban	689	316	373	2	..	1	..	..	..	..	..	66	77	71	117	43	40	133	139
5-14	Total	4,234	2,430	1,804	27	25	291	253	25	18	1	..	334	299	802	422	240	207	710	580	
	Rural	1,183	611	572	17	21	287	252	25	18	..	..	75	106	77	54	39	49	91	72
	Urban	3,051	1,819	1,232	10	4	1	..	..	..	1	..	259	193	725	368	201	158	619	508
15-24	Total	3,716	2,178	1,538	20	26	198	134	12	16	1	1	393	288	600	377	307	207	647	489	
	Rural	922	534	388	10	20	193	131	12	16	..	..	88	67	61	35	77	55	93	64
	Urban	2,794	1,644	1,150	10	6	5	3	..	..	1	1	305	221	539	342	230	152	554	425
25-34	Total	2,693	1,609	1,084	29	15	221	220	16	8	..	..	288	128	366	352	209	82	480	279
	Rural	917	547	370	27	13	221	220	16	8	..	..	72	43	58	36	54	8	99	42
	Urban	1,776	1,062	714	2	2	..	..	..	..	..	..	216	85	308	316	155	74	381	237
35-44	Total	1,719	970	749	23	12	178	100	11	13	1	..	165	104	232	226	73	71	287	223	
	Rural	565	349	216	22	10	177	100	11	13	..	..	49	35	26	22	15	13	49	23
	Urban	1,154	621	533	1	2	1	..	..	..	1	..	116	69	206	204	58	58	238	200
45-54	Total	1,110	587	523	10	5	108	65	11	4	..	..	67	77	144	174	42	70	205	128
	Rural	322	193	129	9	3	106	63	11	4	..	..	21	17	23	14	3	13	20	15
	Urban	788	394	394	1	2	2	2	..	..	..	..	46	60	121	160	39	57	185	113
55-64	Total	588	305	283	3	3	40	35	1	3	..	..	32	52	82	81	39	38	108	71
	Rural	154	70	84	2	3	39	33	1	3	..	..	8	14	2	8	6	17	12	6
	Urban	434	235	199	1	..	1	2	..	..	..	..	24	38	80	73	33	21	96	65
65-74	Total	297	167	130	1	..	13	12	1	..	..	..	13	13	74	53	8	11	57	41
	Rural	59	28	31	..	..	13	12	1	..	..	..	4	7	4	2	2	5	4	5
	Urban	238	139	99	1	..	..	..	..	..	..	..	9	6	70	51	6	6	53	36
75 and over	Total	160	98	62	2	..	2	1	1	..	..	..	5	7	45	33	7	9	36	12
	Rural	24	16	8	1	..	2	1	1	..	..	..	2	..	4	4	4	2	2	1
	Urban	136	82	54	1	..	..	..	..	..	..	..	3	7	41	29	3	7	34	11

TABLE 1.14—DVII—LIVELIHOOD CLASSES BY EDUCATIONAL STANDARDS

Educational Standard	Total				Agricultural Classes								Non-Agricultural Classes										
	Persons		Males		Females		Livelihood Class I		Livelihood Class II		Livelihood Class III		Livelihood Class IV		Livelihood Class V		Livelihood Class VI		Livelihood Class VII		Livelihood Class VIII		
							Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
DARJEELING DISTRICT																							
All Standards	94,921	75,920	19,001	11,996	1,461	2,267	220	599	217	182	77	25,163	2,968	10,940	3,499	4,066	1,598	20,967	8,991				
Able to read and write only	76,519	60,597	15,922	10,450	1,300	2,142	184	543	168	104	63	22,651	2,613	7,931	3,082	2,739	1,256	14,037	7,256				
Rural—92	19,434	17,489	1,945	3,229	342	439	33	125	24	7	1	10,228	783	1,009	195	188	32	2,264	535				
Rural—93	9,061	8,216	835	923	156	21	1	62	4	6	1	5,264	212	347	87	337	97	1,256	277				
Rural—94	6,803	6,469	1,334	1,574	54	670	55	60	76	53	15	1,601	541	558	154	393	198	560	241				
Rural—95	11,450	9,922	1,528	4,417	575	981	77	286	64	7	1	2,642	216	414	89	101	21	1,074	485				
Urban—37	20,020	13,135	6,885	262	151	13	3	3	..	16	21	1,823	571	3,207	1,352	824	476	6,987	4,311				
Urban—38	9,761	6,366	3,395	45	22	18	15	7	..	15	24	1,093	290	2,396	1,205	896	432	1,896	1,407				
Middle School	9,848	7,770	2,078	538	134	103	29	50	27	48	8	1,747	265	1,839	292	594	287	2,851	1,036				
Rural—92	1,114	953	161	95	5	14	..	13	1	..	..	388	66	140	6	24	..	279	83				
Rural—93	674	595	79	41	11	..	..	..	..	..	..	246	24	63	3	59	16	186	25				
Rural—94	1,335	1,132	203	78	33	49	11	12	24	18	..	656	69	87	3	119	35	113	28				
Rural—95	585	486	99	214	51	31	4	24	2	..	..	49	9	33	5	6	2	129	26				
Urban—37	3,898	2,821	1,077	94	31	3	3	1	..	15	6	220	55	709	186	136	88	1,643	708				
Urban—38	2,242	1,783	459	16	3	6	11	..	..	15	2	184	42	807	89	250	146	501	166				
Matriculate or S. L. C. Higher Secondary	4,931	4,259	672	74	16	16	6	3	11	22	3	435	70	755	71	611	50	2,343	445				
Rural—92	744	672	72	8	1	4	..	..	..	..	..	102	48	34	1	1	..	523	22				
Rural—93	241	221	20	8	..	..	..	1	..	..	..	53	5	16	2	43	2	100	11				
Rural—94	316	290	26	13	..	5	..	..	10	2	..	100	8	24	..	89	1	57	7				
Rural—95	175	146	29	8	5	2	3	2	1	..	..	40	3	30	2	..	..	64	15				
Urban—37	1,564	1,252	312	33	9	2	..	..	..	12	2	68	4	205	53	94	16	838	228				
Urban—38	1,891	1,678	213	4	1	3	3	..	..	8	1	72	2	446	13	384	31	761	162				
Intermediate in Arts or Science	1,137	995	142	10	7	2	..	2	5	5	2	103	9	139	15	57	3	677	101				
Rural—92	56	52	4	1	1	..	..	..	..	..	..	12	1	..	..	1	..	38	2				
Rural—93	54	50	4	..	..	..	..	..	..	..	..	16	3	2	..	1	..	31	1				
Rural—94	74	66	8	3	1	..	..	1	5	..	..	29	..	5	..	5	..	23	2				
Rural—95	49	40	9	3	2	2	..	..	..	..	..	15	1	..	..	..	..	19	6				
Urban—37	454	374	80	2	3	..	..	..	..	3	2	22	3	74	12	13	2	260	58				
Urban—38	450	413	37	1	..	..	..	..	..	2	..	9	1	58	3	37	1	306	32				

TABLE 1.14—DVII—LIVELIHOOD CLASSES BY EDUCATIONAL STANDARDS—*contd.*

Educational Standard	Total			Agricultural Classes										Non-Agricultural Classes														
	Persons Males Females			Livelihood Class I			Livelihood Class II			Livelihood Class III			Livelihood Class IV			Livelihood Class V			Livelihood Class VI			Livelihood Class VII			Livelihood Class VIII			
				Males	Females		Males	Females		Males	Females		Males	Females		Males	Females		Males	Females		Males	Females		Males	Females		Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20									
Graduate in Arts or Science	672	596	76	15	2	1	..	..	3	3	..	50	2	68	5	32	1	427	63									
Rural—92	52	48	4	1	..	..	..	..	..	..	..	12	..	1	..	..	..	34	4									
Rural—93	13	11	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	9	2									
Rural—94	41	36	5	2	..	..	..	..	3	..	..	20	..	1	..	2	..	11	2									
Rural—95	14	12	2	4	..	..	..	..	..	..	..	6	..	1	1	..	..	1	1									
Urban—37	354	305	49	5	2	..	..	..	..	3	..	3	2	27	3	11	..	256	42									
Urban—38	198	184	14	3	..	1	..	..	..	..	..	7	..	38	1	19	1	116	12									
Post Graduate in Arts or Science	90	85	5	..	..	..	..	..	1	..	..	11	..	27	1	17	1	30	2									
Rural—92	11	10	1	..	..	..	..	..	..	..	..	4	..	..	..	..	..	6	1									
Rural—93	4	4	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	..									
Rural—94	2	1	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1	..									
Rural—95	15	14	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	14	..									
Urban—37	10	9	1	..	..	..	..	..	..	..	..	4	..	5	..	..	..	1	1									
Urban—38	48	47	1	..	..	..	..	..	..	..	..	1	..	22	..	17	1	7	..									
Teaching	201	141	60	3	1	3	1	1	..	..	..	22	3	11	2	8	..	93	53									
Rural—92	17	16	1	..	..	1	1	..	..	..	..	..	..	1	..	..	..	14	..									
Rural—93	14	14	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	12	..									
Rural—94	25	25	..	3	..	1	..	..	..	..	..	21	..	..	..	..	..	..	..		
Rural—95	12	11	1	..	1	1	..	1	..	..	..	..	..	..	..	..	..	9	..									
Urban—37	74	32	42	..	..	..	..	..	..	..	..	1	3	3	2	..	..	28	3									
Urban—38	59	43	16	..	..	..	..	..	..	..	..	..	..	7	..	6	..	30	1									
Engineering	47	47	..	..	..	..	..	..	..	..	..	13	..	2	..	..	..	32	..									
Rural—93	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..		
Rural—94	13	13	..	..	..	..	..	..	..	..	..	11	..	..	..	..	..	2	..									
Rural—95	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..									
Urban—37	20	20	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	19	..									
Urban—38	11	11	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	9	..									

TABLE 1.14—DVII--LIVELIHOOD CLASSES BY EDUCATIONAL STANDARDS—*contd.*

Educational Standard	Total			Agricultural Classes										Non-Agricultural Classes													
	Persons		Females	Livelihood Class I			Livelihood Class II			Livelihood Class III			Livelihood Class IV			Livelihood Class V			Livelihood Class VI			Livelihood Class VII			Livelihood Class VIII		
	Males	Females		Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20								
<i>Agriculture</i>	30	30	..	..	..	..	..	..	..	..	..	24	..	..	..	..	..	6	..								
Rural—92	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	
Rural—94	23	23	..	..	..	..	..	..	..	..	..	23	..	..	..	..	..	..	..	
Rural—95	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..								
Urban—37	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..								
Urban—38	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..								
<i>Veterinary</i>	9	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..								
Urban—37	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..								
Urban—38	5	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..								
<i>Commerce</i>	28	26	2	..	..	..	..	..	..	..	..	1	..	14	..	..	..	11	2								
Rural—92	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	
Rural—93	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..								
Urban—37	15	13	2	..	..	..	..	..	..	..	..	..	..	12	..	..	..	1	2								
Urban—38	11	11	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	9	..								
<i>Legal</i>	87	87	..	..	..	..	..	..	..	..	..	20	..	15	..	1	..	51	..								
Rural—94	20	20	..	..	..	..	..	..	..	..	..	18	..	1	..	..	..	1	..								
Rural—95	4	4	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	..								
Urban—37	32	32	..	..	..	..	..	..	..	..	..	..	..	2	..	1	..	29	..								
Urban—38	31	31	..	..	..	..	..	..	..	..	..	1	..	12	..	..	..	18	..								
<i>Medical</i>	236	220	16	1	..	..	..	..	..	..	1	60	1	18	..	6	..	135	14								
Rural—92	18	17	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	17	..								
Rural—93	9	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..								
Rural—94	86	85	1	..	..	..	..	..	..	..	60	1	..	1	..	..	..	24	..								
Rural—95	9	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..								
Urban—37	58	56	2	1	..	..	..	..	..	..	..	..	..	5	..	..	..	50	..								
Urban—38	56	44	12	..	..	..	..	..	..	..	..	..	..	12	..	6	..	26	1								
<i>Others</i>	89	83	6	4	..	..	..	..	2	..	..	10	3	21	1	1	..	47	..								
Rural—92	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	
Rural—93	49	48	1	..	..	..	..	..	..	..	..	1	..	..	..	..	..	47	..								
Rural—95	2	..	2	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..
Urban—37	34	31	3	4	..	..	..	..	..	..	..	7	2	20	1	..	..	..	..				
Urban—38	3	3	..	..	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..					

TABLE 1.14—DVII—LIVELIHOOD CLASSES BY EDUCATIONAL STANDARDS—*contd.*

Educational Standard	Agricultural Classes										Non-Agricultural Classes									
	Total		Livelihood Class I		Livelihood Class II		Livelihood Class III		Livelihood Class IV		Livelihood Class V		Livelihood Class VI		Livelihood Class VII		Livelihood Class VIII			
			Persons	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
British Degrees or Diplomas	57	43	14	1	1	..	..	..	..	..	..	15	2	..	..	..	..	27	11
Graduate in Arts or Science	18	13	5	..	..	..	..	..	..	..	..	6	..	..	..	..	..	7	5
Rural—92	2	2	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..
Rural—93	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Rural—94	4	2	2	..	..	..	..	..	..	..	..	2	..	..	..	..	..	2	3
Rural—95	3	..	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Urban—37	8	8	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	6	..
Post Graduates in Arts or Science	15	10	5	..	..	..	..	..	..	..	..	3	1	..	..	..	..	7	4
Rural—94	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Rural—95	3	2	1	..	..	..	..	..	..	..	..	2	1	..	..	..	..	..	..
Urban—37	11	7	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	4
Engineering																				
Urban—37	3	3	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..
Agriculture																				
Rural—92	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Commerce																				
Rural—94	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Legal	4	4	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	3	..
Rural—92	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Rural—95	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..
Urban—37	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	2
Medical	10	7	3	..	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..
Rural—92	2	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..
Rural—94	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Rural—95	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..
Urban—37	5	3	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	2

TABLE 1.14—DVII—LIVELIHOOD CLASSES BY EDUCATIONAL STANDARDS—contd.

Educational Standard	Agricultural Classes										Non-Agricultural Classes									
	Total		Livelihood Class I		Livelihood Class II		Livelihood Class III		Livelihood Class IV		Livelihood Class V		Livelihood Class VI		Livelihood Class VII		Livelihood Class VIII			
	Persons	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
<i>British Degrees or Diplomas—concd.</i>																				
Others	5	4	1	1	1	..	..	..	..	..	3	..	..	..	..	..	..	..	..
Rural—92	3	3	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..
Rural—95	2	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<i>American Degrees or Diplomas</i>	15	8	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	7	
Graduate in Arts or Science	8	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	4	
Rural—93	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	
Urban—37	7	3	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	4	
Post Graduate in Arts or Science																				
Urban—37	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1	
Teaching																				
Urban—37	3	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	2	
Engineering																				
Urban—37	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	
Others																				
Urban—37	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	
<i>Continental Degrees or Diplomas</i>	23	22	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	21	1	
Graduate in Arts or Science	8	8	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	..	
Rural—93	7	7	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	7	..	
Urban—37	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	

TABLE 1.14—DVII—LIVELIHOOD CLASSES BY EDUCATIONAL STANDARDS—*concl.*

Educational Standard	Total						Agricultural Classes						Non-Agricultural Classes										
	Persons		Males		Females		Livelihood Class I		Livelihood Class II		Livelihood Class III		Livelihood Class IV		Livelihood Class V		Livelihood Class VI		Livelihood Class VII		Livelihood Class VIII		
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20				
<i>Continental Degrees or Diplomas—concl.</i>																							
Post Graduate in Arts or Science																							
Urban—37 . .	2	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	1			
Teaching . .	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..			
Rural—92 . .	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..			
Urban—37 . .	2	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..			
Engineering																							
Urban—37 . .	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..			
Agriculture																							
Rural—92 . .	1	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Legal																							
Rural—93 . .	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..			
Medical																							
Urban—37 . .	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..			
Others . .	5	5	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	5	..			
Rural—93 . .	4	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4	..			
Urban—37 . .	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..			
<i>Other Foreign Degrees or Diplomas</i>																							
Graduate in Arts or Science																							
Urban—37 . .	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..			
Medical																							
Urban—37 . .	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..			

TABLE 1.15—CIII—AGE AND CIVIL CONDITION

District and Tract	Persons	Total		Unmarried		Married		Widowed or divorced		Age—0		Age 1—4	
		Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13	14
SAMPLE POPULATION													
DARJEELING DISTRICT													
Total	43,058	22,984	20,074	12,540	10,019	9,411	8,599	1,033	1,456	521	542	2,077	2,189
Rural	34,696	18,094	16,602	10,003	8,227	7,214	7,199	877	1,176	418	442	1,732	1,831
Urban	8,362	4,890	3,472	2,537	1,792	2,197	1,400	156	280	103	100	345	358
Rural—92	13,586	6,966	6,620	4,034	3,607	2,610	2,539	322	474	149	176	714	776
Rural—93	5,403	2,766	2,637	1,676	1,385	927	1,009	163	243	77	86	292	283
Rural—94	8,020	4,315	3,705	1,760	1,270	2,314	2,260	241	175	89	75	299	326
Rural—95	7,687	4,047	3,640	2,533	1,965	1,363	1,391	151	284	103	105	427	447
Urban—37	6,148	3,323	2,825	1,906	1,505	1,302	1,090	115	230	61	71	244	273
Urban—38	2,214	1,567	647	631	287	895	310	41	50	42	29	101	85
DISPLACED POPULATION													
Total	15,738	8,931	6,807	4,820	2,637	3,930	3,393	181	777	92	98	495	536
Rural	4,573	2,555	2,018	1,441	834	1,017	896	97	288	28	57	179	163
Urban	11,165	6,376	4,789	3,379	1,803	2,913	2,497	84	489	64	41	316	373
Rural—92	120	70	50	36	22	32	26	2	2	2	2	5	4
Rural—93	149	73	76	37	39	36	34	3	3	1	..	7	4
Rural—94	4,203	2,352	1,851	1,340	752	919	852	93	277	25	55	164	152
Rural—95	101	60	41	28	21	30	14	2	6	..	..	3	3
Urban—37	789	476	313	193	144	277	125	6	44	7	9	23	27
Urban—38	10,376	5,900	4,476	3,186	1,659	2,636	2,372	78	445	57	32	293	346

TABLE 1.15—CIII—AGE AND CIVIL CONDITION—*contd.*

District and Tract	Age 5—14										Age 15—24									
	Total		Unmarried		Married		Widowed or divorced				Total		Unmarried		Married		Widowed or divorced			
	Males	Females	Males	Females	Males	Females	Males	Females			Males	Females	Males	Females	Males	Females	Males	Females		
	15	16	17	18	19	20	21	22			23	24	25	26	27	28	29	30		
DARJEELING DISTRICT																				
Total	5,540	5,185	5,500	5,095	39	88	1	2			4,826	4,317	3,388	1,875	1,387	2,356	51	96		
Rural	4,540	4,259	4,523	4,180	17	77	..	2			3,610	3,479	2,540	1,511	1,032	1,901	38	67		
Urban	1,000	926	977	915	22	11	1	..			1,216	838	848	364	355	455	13	19		
Rural—92	1,850	1,819	1,845	1,803	5	15	..	1			1,454	1,451	1,097	757	340	658	17	36		
Rural—93	746	710	745	708	1	2	..	..			565	448	439	266	121	171	5	11		
Rural—94	814	714	807	689	7	44	..	1			791	863	401	130	383	716	7	7		
Rural—95	1,130	1,016	1,126	1,000	4	16	..	..			800	727	603	358	188	356	9	13		
Urban—37	786	766	768	764	17	2	1	..			828	690	626	344	190	327	12	19		
Urban—38	214	160	209	151	5	9	..	..			388	148	222	20	165	128	1	..		
DISPLACED POPULATION																				
Total	2,430	1,904	2,364	1,671	66	131	..	2			2,178	1,538	1,475	293	,676	1,214	27	31		
Rural	611	572	605	537	6	33	..	2			534	388	466	63	65	313	3	12		
Urban	1,819	1,332	1,759	1,134	60	98	..	..			1,644	1,150	1,009	230	611	901	24	19		
Rural—92	13	10	13	10	..	..	..	..			14	21	11	6	3	15	..	..
Rural—93	16	27	16	27	..	..	..	..			14	24	12	6	2	18	..	..
Rural—94	578	519	572	485	6	32	..	2			489	334	428	48	58	274	3	12		
Rural—95	4	16	4	15	..	1	..	..			17	9	15	3	2	6	..	..
Urban—37	90	101	89	95	1	6	..	..			96	54	61	13	35	40	..	1		
Urban—38	1,729	1,131	1,670	1,039	59	92	..	..			1,548	1,096	948	217	576	861	24	18		

TABLE 1.15—CIII—AGE AND CIVIL CONDITION—concl'd.
Classified Abstract of Divorced Persons

District and Tract	Total		Per. Males		Fe. males		Age 5—14		Age 15—24		Age 25—34		Age 35—44		Age 45—54		Age 55—64		Age 65—74		Age 75 and over		Age not stated	
					M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22			
SAMPLE POPULATION																								
DARJEELING DISTRICT																								
Total	.	.	.	285	159	126	..	2	32	35	48	47	30	10	33	20	11	12	3	..	2	..	..	..
Rural	.	.	.	255	145	110	..	2	26	31	43	39	28	9	33	19	11	10	2	..	2	..	..	..
Urban	.	.	.	30	14	16	..	..	6	4	5	8	2	1	..	1	..	2	1	..	..	..	..	..
Rural—92	.	.	.	104	55	49	..	1	11	14	21	20	13	2	9	6	1	6	..	..	..	..	..	..
Rural—93	.	.	.	41	24	17	..	..	6	9	5	4	4	..	1	3	5	1	1	..	2	..	..	..
Rural—94	.	.	.	61	37	24	..	1	3	4	7	7	2	5	21	5	4	2	..	..	..	..	..	..
Rural—95	.	.	.	49	29	20	..	..	6	4	10	8	9	2	2	5	1	1	1	..	..	..	..	..
Urban—37	.	.	.	30	14	16	..	..	6	4	5	8	2	1	..	1	..	2	1	..	..	..	..	..
Urban—38

DISPLACED POPULATION

Total	3	2	1	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural	3	2	1	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Urban	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—92	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—93	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—94	2	2	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—95	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Urban—37	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Urban—38	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

TABLE 1.16—CIV—AGE AND LITERACY—*contd.*

District and Tract	Age 10—14						Age 15—24						Age 25—34					
	Total		Literate		Illiterate		Total		Literate		Illiterate		Total		Literate		Illiterate	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
16 . 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33																		
SAMPLE POPULATION																		
DARJEELING DISTRICT																		
Total . . .	3,012	2,709	993	472	2,019	2,237	4,826	4,317	1,842	516	2,984	3,801	3,883	3,376	1,615	295	2,268	3,081
Rural . . .	2,466	2,201	611	220	1,855	1,981	3,610	3,479	1,143	230	2,467	3,249	2,867	2,858	994	119	1,873	2,739
Urban . . .	546	508	382	252	164	256	1,216	838	699	286	517	552	1,016	518	621	176	395	342
Rural—92 . . .	1,027	992	256	75	771	917	1,454	1,451	546	91	908	1,360	971	945	436	44	535	901
Rural—93 . . .	415	347	124	31	291	316	565	448	218	46	347	402	363	370	176	22	187	348
Rural—94 . . .	459	335	65	33	394	302	791	553	99	45	692	808	965	984	142	24	823	960
Rural—95 . . .	565	527	166	81	399	446	800	727	280	48	526	679	568	559	240	29	328	530
Urban—37 . . .	439	434	327	214	112	220	828	690	520	232	308	458	612	406	425	144	187	262
Urban—38 . . .	107	74	55	38	52	36	388	148	179	54	209	94	404	112	196	32	208	80
DISPLACED POPULATION																		
Total . . .	1,355	949	815	466	540	483	2,172	1,538	1,437	896	741	642	1,609	1,084	1,283	533	326	551
Rural . . .	298	266	134	107	164	159	534	388	279	188	255	200	547	370	269	94	278	276
Urban . . .	1,057	683	681	359	376	324	1,644	1,150	1,158	708	486	442	1,062	714	1,014	439	48	275
Rural—92 . . .	7	6	7	6	..	..	14	21	14	21	..	..	25	7	24	7	1	..
Rural—93 . . .	9	12	9	12	..	..	14	24	14	21	..	..	13	8	13	8	..	..
Rural—94 . . .	280	243	116	84	164	159	489	334	235	138	254	196	491	348	214	74	277	274
Rural—95 . . .	2	5	2	5	..	..	17	9	16	8	1	1	18	7	18	5	..	2
Urban—37 . . .	61	59	55	48	6	11	96	54	77	35	19	19	70	53	65	33	6	20
Urban—38 . . .	996	624	626	311	370	313	1,548	1,096	1,081	673	467	423	992	661	949	408	43	255

TABLE 1.16—CIV—AGE AND LITERACY—contd.

District and Tract	Age 35—44						Age 45—54						Age 55—64					
	Total			Literate			Illiterate			Total			Literate			Illiterate		
	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total	Males	Females	Total
DARJEELING DISTRICT																		
Total . . .	2,839	2,099	993	124	1,846	1,975	1,866	1,191	689	48	1,177	1,143	932	756	291	35	641	721
Rural . . .	2,254	1,738	682	63	1,372	1,675	1,470	1,014	475	21	995	993	781	627	217	16	564	611
Urban . . .	585	361	311	61	274	300	396	177	214	27	182	150	151	129	74	19	77	110
Rural—92 . . .	791	609	329	21	462	588	536	434	238	6	318	428	271	242	101	3	170	239
Rural—93 . . .	316	365	89	11	228	354	206	200	97	3	109	197	126	108	48	3	78	105
Rural—94 . . .	708	430	91	17	617	413	373	153	67	2	308	151	207	131	37	5	170	126
Rural—95 . . .	439	334	174	14	265	320	333	227	73	10	260	217	177	146	31	5	146	141
Urban—37 . . .	326	312	176	49	150	263	286	148	156	19	130	129	114	105	55	15	59	90
Urban—38 . . .	259	49	135	12	124	37	110	29	58	8	52	21	37	24	19	4	18	20
SAMPLE POPULATION																		
DISPLACED POPULATION																		
Total . . .	970	749	656	371	314	378	587	523	415	197	172	326	305	283	234	96	71	187
Rural . . .	349	216	157	64	192	152	193	129	83	23	110	106	70	84	23	13	47	71
Urban . . .	621	533	499	307	122	226	394	394	332	174	62	220	235	199	211	83	24	116
Rural—92 . . .	9	2	9	2	..	..	1	1	1	1	..	..	..	1	..	..	..	1
Rural—93 . . .	14	6	14	6	..	..	5	5	5	1	..	4	2	1	2	..	..	1
Rural—94 . . .	317	206	125	55	192	151	182	121	73	21	109	100	66	81	20	12	46	69
Rural—95 . . .	9	2	9	1	..	1	5	2	4	..	1	2	2	1	1	1	1	..
Urban—37 . . .	48	27	44	18	4	9	55	19	47	10	8	9	42	14	41	6	1	8
Urban—38 . . .	573	506	455	289	118	217	339	375	285	164	54	211	193	185	170	77	23	108

TABLE 1.16—CIV—AGE AND LITERACY—contd.

District and Tract	Age 65—74						Age 75 and over						Age not stated					
	Total		Literate		Illiterate		Total		Literate		Illiterate		Total		Literate		Illiterate	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	
DARJEELING DISTRICT																		
Total	349	269	101	15	248	254	146	144	42	3	104	141	5	6	..	..	5	6
Rural	294	228	70	6	224	222	125	122	35	1	90	121	3	4	..	..	3	4
Urban	55	41	31	9	24	32	21	22	7	2	14	20	2	2	..	..	2	2
Rural—92	140	106	35	2	105	104	69	62	21	..	48	62	1	..	..	..	1	..
Rural—93	51	47	19	1	32	46	24	20	10	..	14	20	..	..	..	..	..	..
Rural—94	51	28	3	1	48	27	14	8	3	1	11	7	2	4	..	..	2	4
Rural—95	52	47	13	2	39	45	18	32	1	..	17	32	..	..	..	..	..	..
Urban—37	44	33	22	6	22	27	20	19	7	1	13	18	2	2	..	..	2	2
Urban—38	11	8	9	3	2	5	1	3	..	1	1	2	..	..	..	..	..	..
DISPLACED POPULATION																		
Total	167	130	124	51	43	79	98	62	52	17	16	45	..	..	..	..	..	..
Rural	28	31	14	9	14	22	16	8	12	4	4	4	..	..	..	..	..	..
Urban	139	99	110	42	29	57	82	54	70	13	12	41	..	..	..	..	..	..
Rural—92	1	1	1	1	..	..	..	1	..	1	..	..	..	..	..	..	..	..
Rural—93	1	1	1	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—94	26	28	12	7	14	21	14	7	10	3	4	4	..	..	..	..	..	..
Rural—95	..	1	..	..	..	1	2	..	2	..	..	..	..	..	..	..	..	..
Urban—37	25	5	25	1	..	4	20	4	20	1	..	3	..	..	..	..	..	..
Urban—38	114	94	85	41	29	53	62	50	50	12	12	38	..	..	..	..	..	..

TABLE 1.16—CIV—AGE AND LITERACY—concl'd.

Abstract classifying those 'Able to Read' in Age Groups

(In table CIV those 'Able to Read' have been included in the column for Illiterate)

District and Tract	Total		Age 5—9		Age 10—14		Age 15—24		Age 25—34		Age 35—44		Age 45—54		Age 55—64		Age 65—74		Age 75 and over		Age not stated	
	Per- sons	Males	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F			
1	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
SAMPLE POPULATION																						
Total	424	317	107	37	28	44	28	85	17	52	13	50	12	33	8	9	..	6	1	1	..	..
Rural	330	263	67	20	16	40	12	78	12	45	12	41	9	23	5	9	..	6	1	1	..	..
Urban	94	54	40	17	12	4	16	7	5	7	1	9	3	10	3	..	..	..	..	..	..	..
Rural—92	142	123	19	9	8	11	5	40	3	22	1	20	1	13	..	4	..	4	1	..	..	..
Rural—93	49	41	8	4	4	15	4	7	..	5	..	4	..	4	..	2	..	..	..	..	..	..
Rural—94	63	28	35	3	2	3	3	9	8	..	11	6	7	4	4	1	..	1	..	1	..	..
Rural—95	76	71	5	4	2	11	..	22	1	18	..	11	1	2	1	2	..	1	..	..	..	..
Urban—37	81	44	37	16	10	3	15	5	5	5	1	7	3	8	3	..	..	..	..	..	..	..
Urban—38	13	10	3	1	2	1	1	2	..	2	..	2	..	2	..	..	..	..	..	..	..	..

SAMPLE POPULATION

DISPLACED POPULATION

Total	•	•	348	167	181	23	102	125	48	7	22	9	5	•	•	1	•	•	2	•	1	•	•
Rural	•	•	25	12	13	1	5	1	3	3	4	4	1	•	•	•	•	•	•	•	•	•	
Urban	•	•	323	155	168	22	97	124	45	4	18	5	4	•	•	•	•	•	2	•	1	•	
Rural—92	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Rural—93	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Rural—94	•	•	25	12	13	1	5	1	3	3	4	4	1	•	•	•	•	•	•	•	•	•	
Rural—95	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Urban—37	•	•	20	7	13	4	4	3	1	•	2	•	4	•	•	•	•	•	•	•	1	•	
Urban—38	•	•	303	148	155	18	93	121	44	4	16	5	•	•	•	•	•	•	2	•	•	•	

TABLE 1.17—CV—SINGLE YEAR AGE RETURNS
SAMPLE POPULATION

DARJEELING DISTRICT

Age Returns			Age Returns			Age Returns		
		Males Females			Males Females			Males Females
All ages	{ Total .	22,084 20,074	20	{ Total .	516 507	41	{ Total .	178 186
	{ Rural .	18,094 16,602		{ Rural .	331 375		{ Rural .	167 163
	{ Urban .	4,890 3,472		{ Urban .	185 132		{ Urban .	21 23
0	{ Total .	521 542	21	{ Total .	372 348	42	{ Total .	290 193
	{ Rural .	418 442		{ Rural .	272 299		{ Rural .	245 163
	{ Urban .	103 100		{ Urban .	100 49		{ Urban .	45 30
1	{ Total .	395 403	22	{ Total .	537 474	43	{ Total .	130 95
	{ Rural .	326 329		{ Rural .	405 379		{ Rural .	104 86
	{ Urban .	69 74		{ Urban .	132 95		{ Urban .	26 9
2	{ Total .	556 526	23	{ Total .	350 243	44	{ Total .	154 105
	{ Rural .	484 429		{ Rural .	268 199		{ Rural .	127 90
	{ Urban .	72 97		{ Urban .	82 44		{ Urban .	27 15
3	{ Total .	563 608	24	{ Total .	468 452	45	{ Total .	423 208
	{ Rural .	461 514		{ Rural .	347 357		{ Rural .	317 165
	{ Urban .	102 94		{ Urban .	121 95		{ Urban .	106 43
4	{ Total .	563 652	25	{ Total .	641 717	46	{ Total .	201 112
	{ Rural .	461 559		{ Rural .	453 610		{ Rural .	169 104
	{ Urban .	102 93		{ Urban .	188 107		{ Urban .	32 8
5	{ Total .	574 527	26	{ Total .	430 574	47	{ Total .	111 71
	{ Rural .	463 442		{ Rural .	316 517		{ Rural .	86 56
	{ Urban .	111 85		{ Urban .	114 57		{ Urban .	25 15
6	{ Total .	548 514	27	{ Total .	357 225	48	{ Total .	201 145
	{ Rural .	452 431		{ Rural .	265 191		{ Rural .	168 137
	{ Urban .	96 83		{ Urban .	92 34		{ Urban .	33 8
7	{ Total .	418 491	28	{ Total .	447 384	49	{ Total .	93 68
	{ Rural .	341 412		{ Rural .	335 317		{ Rural .	75 63
	{ Urban .	77 79		{ Urban .	112 67		{ Urban .	18 5
8	{ Total .	494 476	29	{ Total .	237 154	50	{ Total .	427 262
	{ Rural .	411 393		{ Rural .	176 141		{ Rural .	321 205
	{ Urban .	83 83		{ Urban .	61 13		{ Urban .	106 57
9	{ Total .	494 468	30	{ Total .	680 507	51	{ Total .	105 88
	{ Rural .	407 380		{ Rural .	471 374		{ Rural .	83 80
	{ Urban .	87 88		{ Urban .	209 133		{ Urban .	22 8
10	{ Total .	658 549	31	{ Total .	185 166	52	{ Total .	148 108
	{ Rural .	533 450		{ Rural .	148 148		{ Rural .	126 95
	{ Urban .	125 99		{ Urban .	37 18		{ Urban .	22 13
11	{ Total .	501 483	32	{ Total .	448 334	53	{ Total .	86 55
	{ Rural .	410 382		{ Rural .	330 275		{ Rural .	70 47
	{ Urban .	91 101		{ Urban .	118 59		{ Urban .	16 8
12	{ Total .	710 631	33	{ Total .	212 145	54	{ Total .	71 74
	{ Rural .	592 530		{ Rural .	171 128		{ Rural .	55 62
	{ Urban .	118 101		{ Urban .	41 17		{ Urban .	16 12
13	{ Total .	527 465	34	{ Total .	246 170	55	{ Total .	169 88
	{ Rural .	427 367		{ Rural .	202 157		{ Rural .	139 66
	{ Urban .	100 98		{ Urban .	44 13		{ Urban .	30 22
14	{ Total .	616 581	35	{ Total .	529 329	56	{ Total .	94 86
	{ Rural .	504 472		{ Rural .	383 254		{ Rural .	80 67
	{ Urban .	112 109		{ Urban .	146 75		{ Urban .	14 19
15	{ Total .	544 531	36	{ Total .	334 212	57	{ Total .	53 37
	{ Rural .	492 444		{ Rural .	270 173		{ Rural .	46 30
	{ Urban .	52 87		{ Urban .	64 39		{ Urban .	7 7
16	{ Total .	565 508	37	{ Total .	170 148	58	{ Total .	69 71
	{ Rural .	419 416		{ Rural .	151 127		{ Rural .	61 59
	{ Urban .	146 92		{ Urban .	19 21		{ Urban .	8 12
17	{ Total .	412 395	38	{ Total .	282 254	59	{ Total .	30 38
	{ Rural .	297 330		{ Rural .	230 220		{ Rural .	28 33
	{ Urban .	115 65		{ Urban .	52 34		{ Urban .	2 5
18	{ Total .	747 517	39	{ Total .	169 124	60	{ Total .	255 194
	{ Rural .	538 397		{ Rural .	149 104		{ Rural .	189 165
	{ Urban .	209 120		{ Urban .	20 20		{ Urban .	66 29
19	{ Total .	315 342	40	{ Total .	603 453	61	{ Total .	72 76
	{ Rural .	241 283		{ Rural .	438 358		{ Rural .	67 65
	{ Urban .	74 59		{ Urban .	165 95		{ Urban .	5 11

TABLE 1.17—CV—SINGLE YEAR AGE RETURNS—*concl'd.*
SAMPLE POPULATION
DARJEELING DISTRICT

Age Returns	Males	Females	Age Returns	Males	Females	Age Returns	Males	Females
62 . { Total . 66 83			76 . { Total . 17 17			89 . { Total . 2 2		
Rural . 57 73			Rural . 14 17			Rural . 2 2		
Urban . 9 10			Urban . 3 ..			Urban		
63 . { Total . 66 42			77 . { Total . 13 12			90 . { Total . 3 2		
Rural . 59 36			Rural . 11 11			Rural . 3 2		
Urban . 7 6			Urban . 2 1			Urban		
64 . { Total . 58 41			78 . { Total . 14 7			91 . { Total . 1 1		
Rural . 55 33			Rural . 13 7			Rural . 1 1		
Urban . 3 8			Urban . 1 ..			Urban		
65 . { Total . 74 43			79 . { Total . 6 14			92 . { Total . .. 2		
Rural . 65 38			Rural . 5 12			Rural . .. 2		
Urban . 9 5			Urban . 1 2			Urban		
66 . { Total . 39 40			80 . { Total . 16 33			93 . { Total . 1 1		
Rural . 35 35			Rural . 12 23			Rural . 1 1		
Urban . 4 5			Urban . 4 10			Urban		
67 . { Total . 30 18			81 . { Total . 6 4			94 . { Total		
Rural . 24 14			Rural . 6 3			Rural		
Urban . 6 4			Urban . .. 1			Urban		
68 . { Total . 34 38			82 . { Total . 4 5			95 . { Total		
Rural . 29 32			Rural . 4 4			Rural		
Urban . 5 6			Urban . .. 1			Urban		
69 . { Total . 16 11			83 . { Total . 7 4			96 . { Total . 1 ..		
Rural . 10 10			Rural . 7 4			Rural . 1 ..		
Urban . 6 1			Urban . .. 4			Urban		
70 . { Total . 83 74			84 . { Total . 8 6			97 . { Total . 2 1		
Rural . 73 59			Rural . 7 4			Rural . 1 1		
Urban . 10 15			Urban . 1 2			Urban . 1 ..		
71 . { Total . 17 8			85 . { Total . 6 6			98 . { Total . .. 4		
Rural . 14 6			Rural . 4 6			Rural . .. 3		
Urban . 3 2			Urban . 2 ..			Urban . .. 1		
72 . { Total . 31 14			86 . { Total . 4 3			99 . { Total . .. 1		
Rural . 26 14			Rural . 2 3			Rural . .. 1		
Urban . 5 ..			Urban . 2 ..			Urban		
73 . { Total . 12 13			87 . { Total . 2 ..			100 . { Total . 1 1		
Rural . 8 12			Rural . 2 ..			Rural . .. 1		
Urban . 4 1			Urban			Urban . 1 ..		
74 . { Total . 13 10			88 . { Total . 2 1			Over 100 . { Total		
Rural . 10 8			Rural . 2 1			Rural		
Urban . 3 2			Urban			Urban		
75 . { Total . 30 17			Age not stated . { Total . 5 6					
Rural . 27 13			Rural . 3 4					
Urban . 3 4			Urban . 2 2					

TABLE 1.18—CI—HOUSEHOLD (SIZE AND COMPOSITION)

District and Tract		SAMPLE HOUSEHOLDS																				
		Size of Households																				
		Total No. of Households		Total Household Population		Total No. of Sample Households	Sample of Household Population		Small 3 members or less		Medium 4-6 members		Large 7-9 members		Very large 10 members or above							
Total No. of Households		Persons	Males	Females	No. of Sample Households	Persons	Males	Females	Num-ber	Per-sons	Num-ber	Per-sons	Num-ber	Per-sons	Num-ber	Per-sons						
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17					
DARJEELING DISTRICT																						
Total		92,774	442,051	237,484	204,567	91	476	258	218	22	47	45	215	18	138	6	76					
Rural		73,771	348,196	183,091	165,105	69	365	196	169	16	34	36	173	12	92	6	66					
Urban		19,003	93,855	54,393	39,462	22	111	62	49	6	13	9	42	6	46	1	10					
Rural—92		26,418	135,348	69,319	66,029	25	131	75	56	8	14	9	41	6	47	2	29					
Rural—93		11,488	53,975	27,776	26,199	11	54	28	26	2	5	7	33	2	16	..	..			
Rural—94		21,014	82,655	46,301	36,354	19	92	50	42	4	10	12	60	3	22	..	..			
Rural—95		14,851	76,218	39,695	36,523	14	88	43	45	2	5	8	39	1	7	3	37					
Urban—37		12,817	61,645	33,717	27,928	15	74	40	34	5	10	5	23	4	31	1	10					
Urban—38		6,186	32,210	20,676	11,534	7	37	22	15	1	3	4	19	2	15	..	..			
DARJEELING DISTRICT																						
Total		84	7	64	132	85	33	55	14	6	132	114	112	98	158	117	94	87	6	13	..	1
Rural		66	3	52	99	68	28	42	10	5	104	91	32	73	120	91	72	70	4	8
Urban		18	4	12	33	17	5	13	4	1	29	23	30	25	38	26	22	17	2	5	..	1
Rural—92		24	1	17	32	16	17	19	5	..	39	28	31	28	49	30	23	26	3
Rural—93		11	..	11	15	12	2	3	2	1	14	12	12	13	16	12	12	12	..	2
Rural—94		19	..	13	23	17	7	12	1	1	25	26	24	15	28	23	22	15	..	4
Rural—95		12	2	11	29	23	2	8	2	3	26	25	15	17	27	26	15	17	1	2
Urban—37		13	2	8	22	12	4	11	2	1	18	16	20	17	25	20	13	10	2	3	..	1
Urban—38		5	2	4	11	5	1	2	2	..	10	7	10	8	13	6	9	7	..	2

TABLE 1.19—DI—LANGUAGES—(i) MOTHER TONGUE
DARJEELING DISTRICT

Language	Males	Females	Language	Males	Females	Language	Males	Females
All languages			6 Limbu			11 Oraon		
Total . . .	2,38,909	2,06,242	Total . . .	10,104	9,988	Total . . .	8,768	7,293
Rural . . .	1,84,095	1,66,673	Rural . . .	9,201	9,103	Rural . . .	8,721	7,276
Urban . . .	54,904	39,569	Urban . . .	903	885	Urban . . .	47	17
1 Nepali			Rural—92 . . .	5,650	5,617	Rural—93 . . .	28	357
Total . . .	45,229	43,729	Rural—93 . . .	1,360	1,592	Rural—94 . . .	8,448	6,918
Rural . . .	35,069	34,232	Rural—94 . . .	98	45	Rural—95 . . .	245	1
Urban . . .	10,160	9,497	Rural—95 . . .	2,093	1,849	Urban—37 . . .	39	17
Rural—92 . . .	14,989	15,242	Urban—37 . . .	865	865	Urban—38 . . .	8	..
Rural—93 . . .	7,015	6,744	Urban—38 . . .	38	20			
Rural—94 . . .	1,257	1,297	7 Mangar			12 Santali		
Rural—95 . . .	11,808	10,949	Total . . .	10,375	8,999	Total . . .	2,198	1,730
Urban—37 . . .	9,447	9,026	Rural . . .	8,891	7,523	Rural . . .	2,169	1,710
Urban—38 . . .	713	471	Urban . . .	1,484	1,476	Urban . . .	29	20
2 Bengali			Rural—92 . . .	4,571	4,028	Rural—93 . . .	17	..
Total . . .	37,131	27,315	Rural—93 . . .	2,307	2,028	Rural—94 . . .	2,139	1,688
Rural . . .	23,396	17,742	Rural—94 . . .	273	124	Rural—95 . . .	13	22
Urban . . .	13,735	9,573	Rural—95 . . .	1,740	1,343	Urban—38 . . .	29	20
Rural—92 . . .	164	98	Urban—37 . . .	1,365	1,396			
Rural—93 . . .	616	362	Urban—38 . . .	119	80	13 Sharpa		
Rural—94 . . .	22,372	17,078	8 Gurung			Total . . .	4,755	4,234
Rural—95 . . .	244	204	Total . . .	8,924	8,917	Rural . . .	4,167	3,558
Urban—37 . . .	3,164	1,521	Rural . . .	7,603	7,643	Urban . . .	588	676
Urban—38 . . .	10,571	8,052	Urban . . .	1,321	1,274	Rural—92 . . .	2,790	2,390
3 Rai			Rural—92 . . .	4,844	5,044	Rural—93 . . .	385	234
Total . . .	32,388	32,342	Rural—93 . . .	1,138	1,020	Rural—94 . . .	6	8
Rural . . .	29,618	30,014	Rural—94 . . .	47	17	Rural—95 . . .	986	926
Urban . . .	2,740	2,328	Rural—95 . . .	1,574	1,562	Urban—37 . . .	586	676
Rural—92 . . .	16,149	16,669	Urban—37 . . .	1,209	1,203	Urban—38 . . .	2	..
Rural—93 . . .	5,197	5,075	Urban—38 . . .	112	71			
Rural—94 . . .	346	157	9 Newari			14 Bhotia		
Rural—95 . . .	7,956	8,113	Total . . .	7,672	7,141	Total . . .	4,219	2,844
Urban—37 . . .	2,476	2,241	Rural . . .	5,679	5,403	Rural . . .	2,442	1,528
Urban—38 . . .	264	87	Urban . . .	1,993	1,738	Urban . . .	1,777	1,316
4 Tamang			Rural—92 . . .	2,896	2,558	Rural—92 . . .	520	266
Total . . .	24,858	24,922	Rural—93 . . .	1,615	1,571	Rural—93 . . .	41	14
Rural . . .	20,460	20,695	Rural—94 . . .	154	84	Rural—95 . . .	1,881	1,248
Urban . . .	4,398	4,227	Rural—95 . . .	1,104	1,190	Urban—37 . . .	1,763	1,308
Rural—92 . . .	11,374	10,692	Urban—37 . . .	1,851	1,661	Urban—38 . . .	14	8
Rural—93 . . .	5,741	5,742	Urban—38 . . .	142	77			
Rural—94 . . .	338	197	10 Lepcha			15 Sunwar		
Rural—95 . . .	3,007	4,064	Total . . .	6,805	6,589	Total . . .	2,808	1,974
Urban—37 . . .	4,056	4,068	Rural . . .	6,151	5,976	Rural . . .	2,113	1,374
Urban—38 . . .	342	159	Urban . . .	654	613	Urban . . .	695	600
5 Hindi			Rural—92 . . .	1,411	1,555	Rural—92 . . .	1,455	840
Total . . .	19,774	10,466	Rural—93 . . .	644	555	Rural—93 . . .	337	341
Rural . . .	10,123	7,509	Rural—94 . . .	21	6	Rural—94 . . .	44	34
Urban . . .	9,651	2,957	Rural—95 . . .	4,075	3,860	Rural—95 . . .	277	159
Rural—92 . . .	1,505	316	Urban—37 . . .	653	612	Urban—37 . . .	645	577
Rural—93 . . .	842	108	Urban—38 . . .	1	1	Urban—38 . . .	50	23
Rural—94 . . .	6,802	6,715						
Rural—95 . . .	974	370						

TABLE 1.19—DI—LANGUAGES—(i) MOTHER TONGUE—contd.

Language	Males	Females	Language	Males	Females	Language	Males	Females
16 Urdu			21 Dukpa			27 Kagatey		
Total . . .	2,554	426	Total . . .	603	518	Total . . .	147	203
Rural . . .	431	146	Rural . . .	433	390	Rural . . .	70	136
Urban . . .	2,123	280	Urban . . .	170	128	Urban . . .	77	67
Rural—92 . . .	92	31	Rural—92 . . .	402	353	Rural—92 . . .	47	123
Rural—93 . . .	51	12	Rural—93 . . .	12	12	Rural—93 . . .	11	10
Rural—94 . . .	262	90	Rural—95 . . .	19	25	Rural—95 . . .	12	3
Rural—95 . . .	26	13	Urban—37 . . .	170	128	Urban—37 . . .	77	67
Urban—37 . . .	1,807	182						
Urban—38 . . .	316	98	22 Rajasthani			28 Marathi		
			Total . . .	174	540	Total . . .	240	61
17 Mundari			Rural . . .	..	11	Rural . . .	240	61
Total . . .	2,808	2,023	Urban . . .	174	529	Urban . . .	..	..
Rural . . .	2,758	1,983	Rural—94 . . .	..	11	Rural—92 . . .	235	58
Urban . . .	50	40	Urban—37 . . .	..	452	Rural—93 . . .	5	..
Rural—93 . . .	40	42	Urban—38 . . .	174	77	Rural—94 . . .	..	3
Rural—94 . . .	2,482	1,787						
Rural—95 . . .	236	154	23 Chinese			29 Sadana		
Urban—37 . . .	8	..	Total . . .	332	177	Rural—94 . . .	71	229
Urban—38 . . .	42	40	Rural . . .	60	28			
			Urban . . .	272	149	30 Assamese		
18 English			Rural—92 . . .	10	4	Total . . .	272	19
Total . . .	2,061	604	Rural—93 . . .	12	6	Rural . . .	106	1
Rural . . .	1,812	371	Rural—94 . . .	19	6	Urban . . .	166	18
Urban . . .	249	233	Rural—95 . . .	19	12	Rural—92 . . .	2	..
Rural—92 . . .	314	75	Urban—37 . . .	267	146	Rural—93 . . .	5	1
Rural—93 . . .	109	27	Urban—38 . . .	5	3	Rural—94 . . .	97	..
Rural—94 . . .	64	12				Rural—95 . . .	2	..
Rural—95 . . .	1,325	257	24 Thami			Urban—37 . . .	1	6
Urban—37 . . .	224	227	Total . . .	266	191	Urban—38 . . .	165	12
Urban—38 . . .	25	6	Rural . . .	228	184			
			Urban . . .	38	7	31 Marwari		
19 Tibetan			Rural—92 . . .	181	133	Total . . .	98	169
Total . . .	761	675	Rural—93 . . .	37	32	Rural . . .	5	163
Rural . . .	126	34	Rural—94 . . .	5	1	Urban . . .	93	6
Urban . . .	635	641	Rural—95 . . .	5	18	Rural—92 . . .	5	163
Rural—92 . . .	112	2	Urban—37 . . .	33	7	Urban—37 . . .	10	6
Rural—93 . . .	..	6	Urban—38 . . .	5	..	Urban—38 . . .	83	..
Rural—94 . . .	1	..						
Rural—95 . . .	13	26	25 Gurumukhi			32 Sadri		
Urban—37 . . .	631	628	Total . . .	354	60	Rural—94 . . .	..	225
Urban—38 . . .	4	13	Rural . . .	7	3			
			Urban . . .	347	57	33 Punjabi		
20 Oriya			Rural—92 . . .	4	1	Total . . .	97	113
Total . . .	1,105	305	Rural—93 . . .	1	..	Rural . . .	77	6
Rural . . .	1,023	294	Rural—94 . . .	2	2	Urban . . .	20	107
Urban . . .	82	11	Urban—37 . . .	49	34	Rural—92 . . .	36	5
Rural—92 . . .	2	10	Urban—38 . . .	298	23	Rural—93 . . .	40	1
Rural—93 . . .	83	..				Rural—95 . . .	1	..
Rural—94 . . .	544	50	26 Mal Paharia			Urban—37 . . .	8	50
Rural—95 . . .	394	228	Total . . .	69	305	Urban—38 . . .	12	57
Urban—37 . . .	7	..	Rural . . .	62	305			
Urban—38 . . .	75	11	Urban . . .	7	..	Rural—92 . . .	36	5
			Rural—93 . . .	..	131	Rural—93 . . .	40	1
			Rural—94 . . .	62	174	Rural—95 . . .	1	..
			Urban—37 . . .	49	34	Urban—37 . . .	8	50
			Urban—38 . . .	298	23	Urban—38 . . .	12	57

TABLE 1.19—DI—LANGUAGES (i) MOTHER TONGUE—*contd.*

Language	Males	Females	Language	Males	Females	Language	Males	Females
34 Kachin			43 Nagpuri			51 Garo		
Total . . .	31	161	Total . . .	13	61	Rural—94 . . .	31	..
Rural . . .	31	161	Rural . . .	13	61	52 French		
Rural—93 . . .	..	161	Rural—92 . . .	1	..	Total . . .	23	1
Rural—94 . . .	31	..	Rural—94 . . .	12	61	Rural . . .	6	..
35 Kharia			44 Turi			Urban . . .	17	1
Total . . .	19	168	Total . . .	32	25	Rural—93 . . .	6	..
Rural . . .	19	168	Rural . . .	27	20	Urban—37 . . .	17	1
Rural—94 . . .	19	25	Urban . . .	5	5	53 Khond		
Rural—95 . . .	..	133	Rural—93 . . .	27	20	Rural—92 . . .	..	21
36 Mech			Urban 38 . . .	5	5	54 German		
Total . . .	165	2	45 Brijia			Total . . .	2	13
Rural . . .	165	2	Rural 94 . . .	61	..	Rural . . .	..	3
Urban . . .	..	..	46 Ghasi			Urban . . .	2	10
Rural—93 . . .	..	1	Rural 94 . . .	58	..	Rural—94 . . .	..	2
Rural—94 . . .	165	1	47 Malayalam			Rural—95 . . .	..	1
37 Tamil			Total . . .	52	5	Urban—37 . . .	2	10
Total . . .	136	7	Rural . . .	50	2	55 Caucasian		
Rural . . .	86	5	Urban . . .	2	3	Total . . .	2	10
Urban . . .	50	2	Rural 92 . . .	29	..	Rural . . .	1	..
Rural—92 . . .	21	..	Rural—93 . . .	11	..	Urban . . .	1	10
Rural—93 . . .	43	..	Rural—94 . . .	10	..	Rural—93 . . .	1	..
Rural—94 . . .	22	5	Rural—95 . . .	..	2	Urban—37 . . .	1	10
Urban—37 . . .	3	2	Urban—37 . . .	1	3	56 Sindhi		
Urban—38 . . .	47	..	Urban—38 . . .	1	..	Total . . .	3	9
38 Kol			48 Burmese			Rural . . .	..	..
Rural—94 . . .	..	126	Total . . .	44	9	Urban . . .	3	9
39 Dhimal			Rural . . .	..	..	Urban—37 . . .	1	9
Rural—94 . . .	102	22	Urban . . .	44	9	Urban—38 . . .	2	..
40 Telugu			Urban—37 . . .	43	9	57 Hebrew		
Total . . .	91	19	Urban—38 . . .	1	..	Urban—37 . . .	8	3
Rural . . .	54	14	49 Garhwali			58 Italian		
Urban . . .	37	5	Total . . .	39	9	Total . . .	7	1
Rural—92 . . .	3	..	Rural . . .	31	9	Rural . . .	4	..
Rural—94 . . .	51	14	Urban . . .	8	—	Urban . . .	3	1
Urban—37 . . .	13	..	Rural—94 . . .	31	9	Rural—92 . . .	4	..
Urban—38 . . .	24	5	Urban—38 . . .	8	—	Urban—37 . . .	3	1
41 Savara			50 Gujarati			59 Mongolian		
Rural—94 . . .	..	131	Total . . .	27	20	Total . . .	7	..
42 Koda			Rural . . .	1	..	Rural . . .	1	..
Rural—94 . . .	8	73	Urban . . .	26	20	Urban . . .	6	..
			Rural—92 . . .	1	—	Rural—92 . . .	1	..
			Urban—37 . . .	12	6	Urban—37 . . .	6	—
			Urban—38 . . .	14	14			

TABLE 1.19—DI—LANGUAGES—(i) MOTHER TONGUE—concl'd.

Language	Males	Females	Language	Males	Females	Language	Males	Females
60 Russian			65 Czech			71 Dutch		
Urban—37 .	1	5	Total . .	2	1	Total . .	1	1
61 Asuri			Rural . .	..	..	Rural . .	1	..
Rural—94 .	..	6	Urban . .	2	1	Urban . .	..	1
62 Swedish			Urban—37 .	2	..	Rural—93 .	1	..
Urban—37 .	3	2	Urban—38 .	..	1	Urban—37 .	..	1
63 Persian			66 Greek			72 Kanarese		
Total . .	3	2	Urban—37 .	2	1	Rural—94 .	1	..
Rural . .	..	..	67 Danish			73 Kashmiri		
Urban . .	3	2	Urban—37 .	2	1	Rural—95 .	..	1
Urban—37 .	2	2	68 Finnish			74 Siamese		
Urban—38 .	1	..	Urban—37 .	..	2	Urban—37 .	..	1
64 Konkani			69 Arabic			75 Belgian		
Total . .	2	2	Rural—95 .	..	2	Urban—37 .	..	1
Rural . .	2	..	70 Goanese			76 Portuguese		
Urban . .	..	2	Urban—37 .	..	2	Urban—38 .	1	..
Rural—92 .	2	..						
Urban—37 .	..	2						

Fly Leaf Abstract

Language—Tribal

(The term 'tribal' denotes a group of languages where the enumerator could not make out what the language exactly was but was certain that the speaker belonged to a 'tribe')

District and Tract	Total		
	Persons	Males	Females
DARJEELING DISTRICT			
Total . .	19	19	..
Rural . .	11	11	..
Urban . .	8	8	..
Rural—93 .	11	11	..
Urban—38 .	8	8	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES										
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese			
1	2	3	4	5	6	7	8	9	10	11			
DARJEELING DISTRICT													
ALL LANGUAGES													
1 Nepali													
Total	445,241	236,857	5,372	19,804	1,196	210,030	421	14	16	4			
Rural	350,768	191,923	3,665	10,733	1,094	175,987	421	9	12	2			
Urban	94,473	44,934	1,707	9,071	102	34,043	..	5	4	2			
2 Bengali													
Total	64,446	9,289	..	5,493	1,014	2,431	351	..	..	..
Rural	41,138	4,581	..	2,641	1,003	586	351	..	..	..
Urban	23,308	4,708	..	2,852	11	1,845	..	..	..	..
Rural—92	262	135	..	87	2	46	..	..	..	..
Rural—93	978	268	..	98	1	169	..	..	..	..
Rural—94	39,450	3,958	..	2,256	1,000	359	343	..	..	..
Rural—95	448	220	..	200	..	12	8	..	..	..
Urban—37	4,685	3,009	..	1,477	..	1,532	..	..	..	..
Urban—38	18,623	1,699	..	1,375	11	313	..	..	..	..
3 Rai													
Total	64,730	58,875	..	..	..	58,875	..	..	..	..
Rural	59,062	54,308	..	..	..	54,308	..	..	..	..
Urban	5,068	4,567	..	..	..	4,567	..	..	..	..
Rural—92	32,818	29,717	..	..	..	29,717	..	..	..	..
Rural—93	10,272	9,329	..	..	..	9,329	..	..	..	..
Rural—94	503	455	..	..	..	455	..	..	..	..
Rural—95	16,069	14,507	..	..	..	14,507	..	..	..	..
Urban—37	4,717	4,251	..	..	..	4,251	..	..	..	..
Urban—38	351	316	..	..	..	316	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES							
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese
1	2	3	4	5	6	7	8	9	10	11
4 Tamang										
Total	49,780	44,929	..	..	..	44,929	..	..	..	..
Rural	41,155	37,136	..	..	..	37,136	..	..	..	..
Urban	8,625	7,793	..	..	..	7,793	..	..	..	..
Rural—92	22,066	19,882	..	..	..	19,882	..	..	..	..
Rural—93	11,483	10,297	..	..	..	10,297	..	..	..	..
Rural—94	535	476	..	..	..	476	..	..	..	..
Rural—95	7,071	6,481	..	..	..	6,481	..	..	..	..
Urban—37	8,124	7,342	..	..	..	7,342	..	..	..	..
Urban—38	501	451	..	..	..	451	..	..	..	..
5 Hindi										
Total	30,240	5,269	1,711	..	119	3,372	67	..	..	..
Rural	17,632	2,949	859	..	85	1,938	67	..	..	..
Urban	12,608	2,320	852	..	34	1,434	..	..	..	..
Rural—92	1,821	841	9	..	51	781	..	..	..	..
Rural—93	950	218	2	..	2	214	..	..	..	..
Rural—94	13,517	1,383	833	..	31	452	67	..	..	..
Rural—95	1,344	507	15	..	1	491	..	..	..	..
Urban—37	3,290	1,315	75	..	3	1,237	..	..	..	..
Urban—38	9,318	1,005	777	..	31	197	..	..	..	..
6 Limbu										
Total	20,092	17,833	..	..	..	17,833	..	..	..	..
Rural	18,304	16,219	..	..	..	16,219	..	..	..	..
Urban	1,788	1,614	..	..	..	1,614	..	..	..	..
Rural—92	11,267	9,954	..	..	..	9,954	..	..	..	..
Rural—93	2,952	2,659	..	..	..	2,659	..	..	..	..
Rural—94	143	128	..	..	..	128	..	..	..	..
Rural—95	3,942	3,478	..	..	..	3,478	..	..	..	..
Urban—37	1,730	1,561	..	..	..	1,561	..	..	..	..
Urban—38	58	53	..	..	..	53	..	..	..	..
7 Mangar										
Total	19,374	17,423	..	..	..	17,423	..	..	..	..
Rural	16,414	14,759	..	..	..	14,759	..	..	..	..
Urban	2,960	2,664	..	..	..	2,664	..	..	..	..
Rural—92	8,599	7,909	..	..	..	7,909	..	..	..	..
Rural—93	4,335	3,742	..	..	..	3,742	..	..	..	..
Rural—94	397	355	..	..	..	355	..	..	..	..
Rural—95	3,083	2,753	..	..	..	2,753	..	..	..	..
Urban—37	2,761	2,483	..	..	..	2,483	..	..	..	..
Urban—38	199	181	..	..	..	181	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—*contd.*

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES								
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese	
1	2	3	4	5	6	7	8	9	10	11	
8 Gurung											
Total	.	17,841	..	..	..	15,595	..	..	..	..
Rural	.	15,246	..	..	..	13,255	..	..	..	..
Urban	.	2,595	..	..	..	2,340	..	..	..	..
Rural—92	.	9,888	..	..	..	8,863	..	..	..	..
Rural—93	.	2,158	..	..	..	1,465	..	..	..	..
Rural—94	.	64	..	..	..	62	..	..	..	..
Rural—95	.	3,136	..	..	..	2,865	..	..	..	..
Urban—37	.	2,412	..	..	..	2,175	..	..	..	..
Urban—38	.	183	..	..	..	165	..	..	..	..
9 Newari											
Total	.	14,813	..	..	..	13,412	..	..	..	..
Rural	.	11,082	..	..	..	10,063	..	..	..	..
Urban	.	3,731	..	..	..	3,349	..	..	..	..
Rural—92	.	5,364	..	..	..	4,910	..	..	..	..
Rural—93	.	3,186	..	..	..	2,862	..	..	..	..
Rural—94	.	238	..	..	..	218	..	..	..	..
Rural—95	.	2,294	..	..	..	2,073	..	..	..	..
Urban—37	.	3,512	..	..	..	3,159	..	..	..	..
Urban—38	.	219	..	..	..	190	..	..	..	..
10 Lepcha											
Total	.	13,394	..	..	..	12,075	..	..	..	..
Rural	.	12,127	..	..	..	10,931	..	..	..	..
Urban	.	1,267	..	..	..	1,144	..	..	..	..
Rural—92	.	2,966	..	..	..	2,698	..	..	..	..
Rural—93	.	1,199	..	..	..	1,073	..	..	..	..
Rural—94	.	27	..	..	..	24	..	..	..	..
Rural—95	.	7,935	..	..	..	7,136	..	..	..	..
Urban—37	.	1,265	..	..	..	1,142	..	..	..	..
Urban—38	.	2	..	..	..	2	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES							
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese
1	2	3	4	5	6	7	8	9	10	11
11 Oraon										
Total	16,061	4,407	1,183	2,745	..	479	..	..	..	..
Rural	15,997	4,400	1,177	2,744	..	479	..	..	..	..
Urban	64	7	6	1	..	..	..	..	..	..
Rural—93	385	67	16	40	..	11	..	..	..	..
Rural—94	15,366	4,399	1,143	2,688	..	468	..	..	..	..
Rural—95	246	34	18	16	..	..	..	..	..	..
Urban—37	56	6	5	1	..	..	..	..	..	..
Urban—38	8	1	1	..	..	..	..	..	..	..
12 Santali										
Total	3,928	600	328	334	..	18	..	..	..	..
Rural	3,879	676	326	332	..	18	..	..	..	..
Urban	49	4	2	2	..	..	..	..	..	..
Rural—93	17	9	..	9	..	..	..	..	..	..
Rural—94	3,827	661	326	323	..	12	..	..	..	..
Rural—95	35	6	..	..	..	6	..	..	..	..
Urban—38	49	4	2	2	..	..	..	..	..	..
13 Shorpa										
Total	8,989	8,126	..	..	..	8,126	..	..	..	..
Rural	7,725	6,954	..	..	..	6,984	..	..	..	..
Urban	1,264	1,142	..	..	..	1,142	..	..	..	..
Rural—92	5,180	4,678	..	..	..	4,678	..	..	..	..
Rural—93	619	561	..	..	..	561	..	..	..	..
Rural—94	14	14	..	..	..	14	..	..	..	..
Rural—95	1,912	1,731	..	..	..	1,731	..	..	..	..
Urban—37	1,262	1,140	..	..	..	1,140	..	..	..	..
Urban—38	2	2	..	..	..	2	..	..	..	..
14 Bhotia										
Total	7,063	6,335	..	..	..	6,335	..	..	..	..
Rural	3,970	3,547	..	..	..	3,547	..	..	..	..
Urban	3,093	2,788	..	..	..	2,788	..	..	..	..
Rural—92	786	684	..	..	..	684	..	..	..	..
Rural—93	55	44	..	..	..	44	..	..	..	..
Rural—95	3,129	2,819	..	..	..	2,819	..	..	..	..
Urban—37	3,071	2,766	..	..	..	2,766	..	..	..	..
Urban—38	22	22	..	..	..	22	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(iii) BILINGUALISM—contd.

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES							
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese
15 Sunwar	2	3	4	5	6	7	8	9	10	11
Total	4,782	4,339	..	..	..	4,339	..	..	..	..
Rural	3,487	3,178	..	..	..	3,178	..	..	..	..
Urban	1,295	1,161	..	..	..	1,161	..	..	..	..
Rural—92	2,295	2,101	..	..	..	2,101	..	..	..	..
Rural—93	678	611	..	..	..	611	..	..	..	..
Rural—94	78	68	..	..	..	68	..	..	..	..
Rural—95	436	398	..	..	..	398	..	..	..	..
Urban—37	1,222	1,095	..	..	..	1,095	..	..	..	..
Urban—38	73	66	..	..	..	66	..	..	..	..
16 Urdu	2	3	4	5	6	7	8	9	10	11
Total	2,980	1,718	230	851	..	634	3	..	..	..
Rural	577	296	29	194	..	70	3	..	..	..
Urban	2,403	1,422	201	657	..	564	..	..	..	..
Rural—92	123	91	7	22	..	61	1	..	..	..
Rural—93	63	19	1	12	..	4	2	..	..	..
Rural—94	352	172	20	152	..	..	..	..	..	..
Rural—95	39	14	1	8	..	5	..	..	..	..
Urban—37	1,989	1,251	187	504	..	560	..	..	..	..
Urban—38	414	171	14	153	..	4	..	..	..	..
17 Mundari	2	3	4	5	6	7	8	9	10	11
Total	4,831	1,785	596	764	..	405	..	..	..	..
Rural	4,741	1,754	588	761	..	405	..	..	..	..
Urban	90	11	8	3	..	..	..	..	..	..
Rural—93	82	17	..	2	..	15	..	..	..	..
Rural—94	4,269	1,685	558	737	..	390	..	..	..	..
Rural—95	390	52	30	22	..	..	..	..	..	..
Urban—37	8	2	..	2	..	..	..	..	..	..
Urban—38	82	9	8	1	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—*contd.*

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES							
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese
1	2	3	4	5	6	7	8	9	10	11
18 English										
Total	2,665	1,049	22	329	..	698	..	..	..	..
Rural	2,183	937	21	258	..	658	..	..	..	..
Urban	482	112	1	71	..	40	..	..	..	..
Rural—92	389	272	..	117	..	155	..	..	..	..
Rural—93	136	86	..	76	..	10	..	..	..	..
Rural—94	76	77	..	55	..	22	..	..	..	..
Rural—95	1,582	502	21	10	..	471	..	..	..	..
Urban—37	451	106	1	67	..	38	..	..	..	..
Urban—38	31	6	..	4	..	2	..	..	..	..
19 Tibetan										
Total	1,436	1,275	..	..	..	1,275	..	..	..	..
Rural	160	139	..	..	..	139	..	..	..	..
Urban	1,276	1,136	..	..	..	1,136	..	..	..	..
Rural—92	114	96	..	..	..	96	..	..	..	..
Rural—93	6	5	..	..	..	5	..	..	..	..
Rural—94	1	1	..	..	..	1	..	..	..	..
Rural—95	39	37	..	..	..	37	..	..	..	..
Urban—37	1,259	1,120	..	..	..	1,120	..	..	..	..
Urban—38	17	16	..	..	..	16	..	..	..	..
20 Oriya										
Total	1,410	554	187	361	..	6	..	..	..	..
Rural	1,317	506	175	329	..	2	..	..	..	..
Urban	93	48	12	32	..	4	..	..	..	..
Rural—92	12	2	..	2	..	..	..	..	..	..
Rural—93	83	6	..	4	..	2	..	..	..	..
Rural—94	600	266	170	96	..	..	..	..	..	..
Rural—95	622	232	5	227	..	..	..	..	..	..
Urban—37	7	4	..	..	..	4	..	..	..	..
Urban—38	86	44	12	32	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES							
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese
1	2	3	4	5	6	7	8	9	10	11
21 Dikpa										
Total	1,121	986	..	..	..	986	..	..	..	..
Rural	823	714	..	..	..	714	..	..	..	..
Urban	298	272	..	..	..	272	..	..	..	..
Rural—92	755	649	..	..	..	649	..	..	..	..
Rural—93	24	23	..	..	..	23	..	..	..	..
Rural—95	44	42	..	..	..	42	..	..	..	..
Urban—37	298	272	..	..	..	272	..	..	..	..
22 Rajasthani										
Total	714	100	10	75	15	..	..	..	..	..
Rural	11	2	..	2	..	..	..	..	..	..
Urban	703	98	10	73	15	..	..	..	..	..
Rural—94	11	2	..	2	..	..	..	..	..	..
Urban—37	452	65	..	50	15	..	..	..	..	..
Urban—38	261	33	10	23	..	..	..	..	..	..
23 Chinese										
Total	509	42	..	28	..	14	..	..	..	..
Rural	88	17	..	7	..	10	..	..	..	..
Urban	421	25	..	21	..	4	..	..	..	..
Rural—92	14	4	..	1	..	3	..	..	..	..
Rural—93	18	5	..	1	..	4	..	..	..	..
Rural—94	25	6	..	3	..	3	..	..	..	..
Rural—95	31	2	..	2	..	..	..	..	..	..
Urban—37	413	24	..	20	..	4	..	..	..	..
Urban—38	8	1	..	1	..	..	..	..	..	..
24 Thami										
Total	457	420	..	..	..	420	..	..	..	..
Rural	412	378	..	..	..	378	..	..	..	..
Urban	45	42	..	..	..	42	..	..	..	..
Rural—92	314	291	..	..	..	291	..	..	..	..
Rural—93	69	59	..	..	..	59	..	..	..	..
Rural—94	6	6	..	..	..	6	..	..	..	..
Rural—95	23	22	..	..	..	22	..	..	..	..
Urban—37	40	37	..	..	..	37	..	..	..	..
Urban—38	5	5	..	..	..	5	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—*contd.*

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES										
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese			
1	2	3	4	5	6	7	8	9	10	11			
25													
Gurumukhi													
Total		414	42	..	42	..	..	..	..	..	..
Rural	..	10	2	..	2	..	..	..	..	..	..
Urban	..	404	40	..	40	..	..	..	..	..	..
Rural—92	..	5	1	..	1	..	..	..	..	..	..
Rural—93	..	1	..	..	..	..	..	..	..	..	..
Rural—94	..	4	1	..	1	..	..	..	..	..	..
Urban—37	..	83	10	..	10	..	..	..	..	..	..
Urban—38	..	321	30	..	30	..	..	..	..	..	..
26													
Mal Pakaria													
Total	..	374	16	12	4	..	..	..	..	..	..
Rural	..	367	15	11	4	..	..	..	..	..	..
Urban	..	7	1	1	..	..	..	..	..	..	..
Rural—93	..	131	3	1	2	..	..	..	..	..	..
Rural—94	..	236	12	10	2	..	..	..	..	..	..
Urban—38	..	7	1	1	..	..	..	..	..	..	..
27													
Kopoley													
Total	..	350	314	..	..	..	314	..	..	..	..
Rural	..	206	185	..	..	..	185	..	..	..	..
Urban	..	144	129	..	..	..	129	..	..	..	..
Rural—92	..	170	150	..	..	..	150	..	..	..	..
Rural—93	..	21	20	..	..	..	20	..	..	..	..
Rural—95	..	15	15	..	..	..	15	..	..	..	..
Urban—37	..	144	129	..	..	..	129	..	..	..	..
28													
Marathi													
Total	..	301	29	..	27	..	2	..	..	..	..
Rural	..	301	29	..	27	..	2	..	..	..	..
Rural—92	..	293	28	..	26	..	2	..	..	..	..
Rural—93	..	5	1	..	1	..	..	..	..	..	..
Rural—94	..	3	..	..	..	..	..	..	..	..	..
29													
Sadana													
Total	..	300	35	30	5	..	..	..	..	..	..
Rural	..	300	35	30	5	..	..	..	..	..	..
Rural—94	..	300	35	30	5	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(iii) BILINGUALISM—contd.

Mother Tongue	Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES									
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese		
1	2	3	4	5	6	7	8	9	10	11		
30 Assamese												
Total	291	51	20	29	..	2	..	..	..	..
Rural	107	31	10	20	..	1	..	..	..	..
Urban	184	20	10	9	..	1	..	..	..	..
Rural—92	2	1	..	1	..	..	..	..	..	..
Rural—93	6	3	..	2	..	1	..	..	..	..
Rural—94	97	26	10	16	..	..	..	..	..	..
Rural—95	2	1	..	1	..	..	..	..	..	..
Urban—37	7	2	..	1	..	1	..	..	..	..
Urban—38	177	18	10	8	..	..	..	..	..	..
31 Marwari												
Total	267	85	3	71	..	11	..	..	..	..
Rural	168	60	..	50	..	10	..	..	..	..
Urban	99	25	3	21	..	1	..	..	..	..
Rural—92	168	60	..	50	..	10	..	..	..	..
Urban—37	16	7	..	6	..	1	..	..	..	..
Urban—38	83	18	3	15	..	..	..	..	..	..
32 Sadri												
Total	225	40	40	..	..	..	..	..	..	..
Rural	225	40	40	..	..	..	..	..	..	..
Rural—94	225	40	40	..	..	..	..	..	..	..
33 Punjabi												
Total	210	40	..	35	..	5	..	..	..	..
Rural	83	23	..	18	..	5	..	..	..	..
Urban	127	17	..	17	..	..	..	..	..	..
Rural—92	41	12	..	10	..	2	..	..	..	..
Rural—93	41	10	..	7	..	3	..	..	..	..
Rural—95	1	1	..	1	..	..	..	..	..	..
Urban—37	58	8	..	8	..	..	..	..	..	..
Urban—38	69	9	..	9	..	..	..	..	..	..
34 Kachin												
Total	192	14	4	10	..	..	..	..	..	..
Rural	192	14	4	10	..	..	..	..	..	..
Rural—93	161	10	..	10	..	..	..	..	..	..
Rural—94	31	4	4	..	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES							
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese
1	2	3	4	5	6	7	8	9	10	11
35 Kharica										
Total	177	19	8	11	..	..	..	..	..	..
Rural	177	19	8	11	..	..	..	..	..	..
Rural—94	44	7	6	1	..	..	..	..	..	..
Rural—95	133	12	2	10	..	..	..	..	..	..
36 Mech										
Total	167	55	51	4	..	..	..	..	..	..
Rural	167	55	51	4	..	..	..	..	..	..
Rural—93	1	1	1	..	..	..	..	..	..	..
Rural—94	166	54	50	4	..	..	..	..	..	..
37 Tamil										
Total	143	34	..	19	..	..	..	..	12	3
Rural	91	24	..	14	..	..	..	..	8	2
Urban	52	10	..	5	..	..	..	..	4	1
Rural—92	21	5	..	3	..	..	..	..	2	..
Rural—93	43	13	..	7	..	..	..	..	4	2
Rural—94	27	6	..	4	..	..	..	..	2	..
Urban—37	5	2	..	1	..	..	..	..	1	..
Urban—38	47	8	..	4	..	..	..	..	3	1
38 Kol										
Total	126	16	16	..	..	..	..	..	..	..
Rural	126	16	16	..	..	..	..	..	..	..
Rural—94	126	16	16	..	..	..	..	..	..	..
39 Dhimal										
Total	124	22	20	2	..	..	..	..	..	..
Rural	124	22	20	2	..	..	..	..	..	..
Rural—94	124	22	20	2	..	..	..	..	..	..
40 Telugu										
Total	110	16	..	8	..	..	..	7	..	1
Rural	68	9	..	6	..	..	..	3	..	..
Urban	42	7	..	2	..	..	..	4	..	1
Rural—92	3	1	..	1	..	..	..	..	..	..
Rural—94	65	8	..	5	..	..	..	3	..	..
Urban—37	13	3	..	1	..	..	..	2	..	..
Urban—38	29	4	..	1	..	..	..	2	..	1

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES										
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese			
1	2	3	4	5	6	7	8	9	10	11			
41 Savara													
Total	131	20	20	..	..	..	..	..	..	..	..
Rural	131	20	20	..	..	..	..	..	..	..	..
Rural—94	131	20	20	..	..	..	..	..	..	..	..
42 Koda													
Total	81	11	11	..	..	..	..	..	..	..	..
Rural	81	11	11	..	..	..	..	..	..	..	..
Rural—94	81	11	11	..	..	..	..	..	..	..	..
43 Nagpuri													
Total	74	16	13	3	..	..	..	..	..	..	..
Rural	74	16	13	3	..	..	..	..	..	..	..
Rural—93	1	1	..	1	..	..	..	..	..	..	..
Rural—94	73	15	13	2	..	..	..	..	..	..	..
44 Turi													
Total	57	12	6	7	..	..	..	..	..	..	..
Rural	47	10	3	7	..	..	..	..	..	..	..
Urban	10	2	3	..	..	..	..	..	..	..	..
Rural—93	47	10	3	7	..	..	..	..	..	..	..
Urban—36	10	2	2	..	..	..	..	..	..	..	..
45 Brijia													
Total	61	17	15	2	..	..	..	..	..	..	..
Rural	61	17	15	2	..	..	..	..	..	..	..
Rural—94	61	17	15	2	..	..	..	..	..	..	..
46 Ghosi													
Total	58	14	12	2	..	..	..	..	..	..	..
Rural	58	14	12	2	..	..	..	..	..	..	..
Rural—94	58	14	12	2	..	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

No.	Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES									
				Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kannarese		
47	Malayalam	1	2	3	4	5	6	7	8	9	10	11	
		Total	57	25	..	..	..	..	..	..	..	..	..
		Rural	52	23	..	15	..	..	..	..	6	4	..
		Urban	5	2	..	14	1	..	..	..	5	4	..
		Rural—92	29	14	..	9	..	..	..	..	1	..	..
		Rural—93	11	4	..	2	..	..	..	2	2	3	..
		Rural—94	10	4	..	2	..	..	..	1	1	1	..
		Rural—95	2	1	..	1	..	..	..	..	..	..	..
		Urban—37	4	2	..	..	..	..	..	..	..	..	..
		Urban—38	1	..	..	1	..	..	..	1	..	..	..
48	Burmese	..	..	..	..	..	..	..	..	..	..	..
		Total	53	4	..	4	..	..	..	..	..	..	..
		Urban	53	4	..	4	..	..	..	..	..	..	..
		Urban—37	52	4	..	4	..	..	..	..	..	..	..
		Urban—38	1	..	..	..	..	..	..	..	..	..	..
49	Garhwali	..	..	..	..	..	..	..	..	..	..	..
		Total	48	18	..	12	..	..	6	..	..	..	..
		Rural	40	16	..	10	..	..	6	..	..	..	..
		Urban	8	2	..	2	..	..	..	..	..	..	..
		Rural—94	40	16	..	10	..	..	6	..	..	..	..
50	Gujarati	..	8	2	..	2	..	..	..	..	..	..
		Total	47	6	..	6	..	..	..	..	..	..	..
		Rural	1	1	..	1	..	..	..	..	..	..	..
		Urban	46	5	..	5	..	..	..	..	..	..	..
		Rural—92	1	1	..	1	..	..	..	..	..	..	..
51	Garo	..	18	2	..	2	..	..	..	..	..	..
		Urban—37	28	3	..	3	..	..	..	..	..	..	..
		Urban—38	..	..	..	..	..	..	..	..	..	..	..
		Total	31	9	7	2	..	..	..	..	..	..	..
		Rural	31	9	7	2	..	..	..	..	..	..	..
Rural—94	31	9	7	2	..	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES										
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kanarese			
1	2	3	4	5	6	7	8	9	10	11			
52 French													
Total	24	21	..	15	..	5	..	1	..	..	..
Rural	6	6	..	5	..	..	..	1	..	..	..
Urban	18	15	..	10	..	5	..	..	..	..	..
Rural—93	6	6	..	5	..	..	..	1	..	..	..
Urban—37	18	15	..	10	..	5	..	..	..	..	..
53 Khond													
Total	21	4	—	4	..	..	..	..	..	..	..
Rural	21	4	..	4	..	..	..	..	..	..	..
Rural—92	21	4	..	4	..	..	..	..	..	..	..
54 German													
Total	15	2	1	1	..	..	..	..	..	..	..
Rural	3	1	..	1	..	..	..	..	..	..	..
Urban	12	1	1	..	..	..	..	..	..	..	..
Rural—94	2	1	—	1	..	..	..	..	..	..	..
Rural—95	1	..	—	..	..	..	..	..	..	..	..
Urban—37	12	1	1	..	..	..	..	..	..	..	..
55 Caucasian													
Total	12	2	—	2	..	..	..	..	..	..	..
Rural	1	1	—	1	..	..	..	..	..	..	..
Urban	11	1	..	1	..	..	..	..	..	..	..
Rural—93	1	1	..	1	..	..	..	..	..	..	..
Urban—37	11	1	—	1	..	..	..	..	..	..	..
56 Sindhi													
Total	12	1	—	1	..	..	..	..	..	..	..
Urban	12	1	—	1	..	..	..	..	..	..	..
Urban—37	10	1	..	1	..	..	..	..	..	..	..
Urban—38	2	..	..	..	..	..	..	..	..	..	..
57 Hebrew													
Total	11	1	—	1	..	..	..	..	..	..	..
Urban	11	1	—	1	..	..	..	..	..	..	..
Urban—37	11	1	—	1	..	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—*contd.*

Mother Tongue	Total Speakers	Total persons returned as speaking a language subsidiary to that shown in column 1	SUBSIDIARY LANGUAGES							
			Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	Kannara
1	2	3	4	5	6	7	8	9	10	11
58 <i>Italian</i>										
Total	8	2	..	2	..	..	..	..	..	..
Rural	4	1	..	1	..	..	..	..	..	..
Urban	4	1	..	1	..	..	..	..	..	..
Rural—92	4	1	..	1	..	..	..	..	..	..
Urban—37	4	1	..	1	..	..	..	..	..	..
59 <i>Mongolian</i>										
Total	7	5	..	1	..	4	..	..	..	..
Rural	1	1	..	..	..	1	..	..	..	..
Urban	6	4	..	1	..	3	..	..	..	..
Rural—92	1	1	..	..	..	1	..	..	..	..
Urban—37	6	4	..	1	..	3	..	..	..	..
60 <i>Russian</i>										
Total	6	..	..	..	..	..	..	..	..	..
Urban	6	..	..	..	..	..	..	..	..	..
Urban—37	6	..	..	..	..	..	..	..	..	..
61 <i>Asuri</i>										
Total	6	2	2	..	..	..	..	..	..	..
Rural	6	2	2	..	..	..	..	..	..	..
Rural—94	6	2	2	..	..	..	..	..	..	..
62 <i>Swedish</i>										
Total	5	1	..	1	..	..	..	..	..	..
Urban	5	1	..	1	..	..	..	..	..	..
Urban—37	5	1	..	1	..	..	..	..	..	..
63 <i>Persian</i>										
Total	5	1	..	..	1	..	..	..	..	..
Urban	5	1	..	..	1	..	..	..	..	..
Urban—37	4	1	..	..	1	..	..	..	..	..
Urban—38	1	..	..	..	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—contd.

[illegible]

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—*contd.*

Mother Tongue	1	2	3	SUBSIDIARY LANGUAGES							11
				Bengali	Hindi	Urdu	Nepali	Oriya	Tamil	Telugu	
			Total persons returned as speaking a language subsidiary to that shown in column 1	4	5	6	7	8	9	10	
71 Dutch											
Total	.	2	1	..	1	..	..	..	..	..	..
Rural	.	1	1	..	1	..	..	..	..	..	..
Urban	.	1	..	..	..	..	..	..	..	..	..
Rural—93	.	1	1	..	1	..	..	..	..	..	..
Urban—37	.	1	..	..	..	..	..	..	..	..	..
72 Kanarese											
Total	.	1	1	..	1	..	..	..	..	..	..
Rural	.	1	1	..	1	..	..	..	..	..	..
Rural—94	.	1	1	..	1	..	..	..	..	..	..
73 Kashmiri											
Total	.	1	1	..	1	..	..	..	..	..	..
Rural	.	1	1	..	1	..	..	..	..	..	..
Rural—95	.	1	1	..	1	..	..	..	..	..	..
74 Siamese											
Total	.	1	1	..	1	..	..	..	..	..	..
Urban	.	1	1	..	1	..	..	..	..	..	..
Urban—37	.	1	1	..	1	..	..	..	..	..	..
75 Belgian											
Total	.	1	..	..	..	..	..	..	..	..	..
Urban	.	1	..	..	..	..	..	..	..	..	..
Urban—37	.	1	..	..	..	..	..	..	..	..	..
76 Portuguese											
Total	.	1	1	..	1	..	..	..	..	..	..
Urban	.	1	1	..	1	..	..	..	..	..	..
Urban—38	.	1	1	..	1	..	..	..	..	..	..

TABLE 1.20—DI—LANGUAGES—(ii) BILINGUALISM—concl'd.

Fly Leaf Abstract

*Language—Tribal **

Mother Tongue											Total Speakers	Total persons returned as speaking a language sub- sidiary to that shown in col. 1	Subsidiary Language Hindi
1											2	3	4
DARJEELING DISTRICT													
<i>Tribal</i>													
Total	.	.	.	.	.	.	.	.	.	.	19	5	5
Rural	.	.	.	.	.	.	.	.	.	.	11	3	3
Urban	.	.	.	.	.	.	.	.	.	.	8	2	2
Rural—93	.	.	.	.	.	.	.	.	.	.	11	3	3
Urban—38	.	.	.	.	.	.	.	.	.	.	8	2	2

*The term 'tribal' denotes a group of languages where the enumerator could not make out what the language exactly was but was certain that the speaker belonged to a 'tribe.'

TABLE 1.21—DII—RELIGION

District and Tract	Total Population										Hindus				Sikhs		Jains		Buddhists	
	Persons		Males		Females		Males		Females		Males		Females		Males		Males		Males	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
1																				
DARJEELING DISTRICT																				
Total	445,260	239,018	206,242	196,644	167,192	207	115	97	26	31,307	30,843									
Rural	350,779	184,106	166,673	152,968	137,143	29	23	51	12	24,091	23,923									
Urban	94,481	54,912	39,569	43,676	30,049	178	92	46	14	7,216	6,920									
Rural—92	136,026	69,732	66,294	56,964	53,127	28	23	41	7	12,074	12,762									
Rural—93	53,994	27,789	26,205	23,076	21,955	..	..	3	4	4,070	3,857									
Rural—94	83,995	46,556	37,439	42,719	34,500	..	..	7	1	123	80									
Rural—95	76,764	40,029	36,735	30,209	27,561	1	..	..	..	7,824	7,224									
Urban—37	62,001	34,009	27,992	24,396	19,217	53	41	32	10	7,142	6,866									
Urban—38	32,480	20,903	11,577	19,280	10,832	125	51	14	4	74	54									

District and Tract	Total Population										Hindus				Sikhs		Jains		Buddhists	
	Persons		Males		Females		Males		Females		Males		Females		Males		Males		Males	
	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
2																				
DARJEELING DISTRICT																				
Total	445,260	239,018	206,242	196,644	167,192	207	115	97	26	31,307	30,843									
Rural	350,779	184,106	166,673	152,968	137,143	29	23	51	12	24,091	23,923									
Urban	94,481	54,912	39,569	43,676	30,049	178	92	46	14	7,216	6,920									
Rural—92	136,026	69,732	66,294	56,964	53,127	28	23	41	7	12,074	12,762									
Rural—93	53,994	27,789	26,205	23,076	21,955	..	..	3	4	4,070	3,857									
Rural—94	83,995	46,556	37,439	42,719	34,500	..	..	7	1	123	80									
Rural—95	76,764	40,029	36,735	30,209	27,561	1	..	..	..	7,824	7,224									
Urban—37	62,001	34,009	27,992	24,396	19,217	53	41	32	10	7,142	6,866									
Urban—38	32,480	20,903	11,577	19,280	10,832	125	51	14	4	74	54									

TABLE 1.21—DII—ABSTRACT FOR 'OTHER RELIGIONS'—concd.

District and Tract	Other Religions														
	Total			Tribal											
				Total			Mech		Oraon		Santal		Unclassified		Non-Tribal
	Persons	Males	Females	Males	Females	Total	Males	Females	Males	Females	Males	Females	Males	Females	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
DARJEELING DISTRICT															
Total	.	.	.	11	7	4	3	..	3	1	1	3	..	..	..
Rural	.	.	.	11	7	4	3	..	3	1	1	3	..	..	..
Urban
Rural—92
Rural—93
Rural—94	.	.	.	11	7	4	3	..	3	1	1	3	..	..	..
Rural—95
Urban—37
Urban—35

TABLE 1.22—DIII—(i) SCHEDULED CASTES AND SCHEDULED TRIBES

District and Tract	Scheduled Castes			Scheduled Tribes		
	Persons	Males	Females	Persons	Males	Females
1	2	3	4	5	6	7
DARJEELING DISTRICT						
Total	26,080	14,881	11,199	44,051	23,107	20,044
Rural	22,913	12,686	10,227	41,054	21,480	19,574
Urban	3,167	2,195	972	2,997	1,627	1,370
Rural—92	363	251	112	3,100	1,584	1,516
Rural—93	409	263	146	1,493	790	703
Rural—94	21,834	11,982	9,852	25,380	13,353	12,027
Rural—95	307	190	117	11,081	5,753	5,328
Urban—37	583	465	118	2,764	1,466	1,298
Urban—38	2,584	1,730	854	233	161	72

TABLE 1.23—DIII—(ii) NON-BACKWARD CLASSES AND CLASSES WHICH ARE NEITHER SCHEDULED NOR NON-BACKWARD

District and Tract	Non-Backward Classes			Classes which are neither Scheduled nor Non-Backward		
	Persons	Males	Females	Persons	Males	Females
1	2	3	4	5	6	7
DARJEELING DISTRICT						
Total	163,397	89,178	74,219	210,590	111,207	99,383
Rural	102,543	53,773	48,770	183,517	95,692	87,825
Urban	60,854	35,405	25,449	27,073	15,515	11,558
Rural—92	43,647	22,055	21,592	88,811	45,748	43,063
Rural—93	15,668	7,527	8,141	36,397	19,198	17,199
Rural—94	24,398	14,342	10,056	12,328	6,826	5,502
Rural—95	18,830	9,849	8,981	45,981	23,920	22,061
Urban—37	33,410	18,087	15,323	24,857	13,822	11,035
Urban—38	27,444	17,318	10,126	2,216	1,693	523

TABLE 1.24—DIII—(iii) ABSTRACT OF ANGLO-INDIANS

District and Tract	Anglo-Indians		
	Persons	Males	Females
1	2	3	4
DARJEELING DISTRICT			
Total	1,142	645	497
Rural	752	475	277
Urban	390	170	220
Rural—92	105	94	11
Rural—93	27	11	16
Rural—94	55	53	2
Rural—95	565	317	248
Urban—37	387	169	218
Urban—38	3	1	2

TABLE 1.25—DIV—MIGRANTS

District, State or Country where born	Population of District				District, State or Country where born	Population of District			
	Persons	Males	Females			Persons	Males	Females	
1	2	3	4		1	2	3	4	
DARJEELING DISTRICT					<i>B—Countries in Asia beyond India (including U. S. S. R.)</i>				
Total Population	445,260	239,018	206,242		(i) Afghanistan	58,500	35,035	23,955	
<i>A—Born in India</i>	<i>385,795</i>	<i>203,718</i>	<i>182,077</i>		Rural—92	2	2	2	
I Born in West Bengal	344,949	178,576	166,373		Urban—37	1	1	1	
(i) Darjeeling	338,161	174,288	163,873		(ii) Burma	594	313	281	
Rural—92	117,232	59,379	57,853		Rural—92	137	73	64	
Rural—93	44,862	22,832	22,030		Rural—93	45	22	23	
Rural—94	55,994	30,689	25,305		Rural—94	12	5	7	
Rural—95	67,133	34,394	32,739		Rural—95	78	38	40	
Urban—37	45,252	22,678	22,574		Urban—37	214	117	97	
Urban—38	7,688	4,316	3,372		Urban—38	108	58	50	
(ii) Other Districts	6,738	4,288	2,500		(iii) Ceylon	..	..	..
Rural—92	209	98	111		(iv) China	192	140	52	
Rural—93	237	157	100		Rural—92	6	6	..	
Rural—94	3,161	2,221	940		Rural—93	4	3	1	
Rural—95	378	183	195		Rural—94	19	12	7	
Urban—37	1,115	634	481		Rural—95	3	2	1	
Urban—38	1,668	995	673		Urban—37	157	115	42	
					Urban—38	3	2	1	
II States in India beyond West Bengal	40,846	25,142	15,704		(v) Nepal	32,647	18,432	14,215	
(i) States adjacent to West Bengal	33,268	19,206	14,062		Rural—92	12,659	6,758	5,901	
Rural—92	4,301	2,366	1,935		Rural—93	6,811	3,382	3,429	
Rural—93	1,003	705	298		Rural—94	2,554	1,573	981	
Rural—94	14,295	7,060	7,235		Rural—95	4,599	2,862	1,737	
Rural—95	3,098	1,783	1,315		Urban—37	5,266	3,242	2,024	
Urban—37	3,333	2,613	720		Urban—38	758	615	143	
Urban—38	7,238	4,679	2,559		(vi) Pakistan	22,601	14,480	8,121	
(ii) Other States	7,578	5,936	1,642		Rural—92	301	177	124	
Rural—92	936	720	216		Rural—93	404	215	189	
Rural—93	489	371	118		Rural—94	6,841	4,359	2,482	
Rural—94	998	532	466		Rural—95	272	143	129	
Rural—95	310	215	95		Urban—37	2,191	1,316	875	
Urban—37	2,466	2,157	309		Urban—38	12,592	8,270	4,322	
Urban—38	2,379	1,941	438		(vii) Straits Settlements and Malaya	15	6	9	
(iii) Elsewhere in India	..	..	..		Rural—92	1	1	..	
					Rural—94	2	..	2	
					Rural—95	1	1	..	
					Urban—37	9	4	5	
					Urban—38	2	..	2	

TABLE 1.25—DIV—MIGRANTS—contd.

District, State or Country where born	Population of District			District State or Country where born	Population of District		
	Persons	Males	Females		Persons	Males	Females
B—Countries in Asia beyond India (including U. S. S. R.)—concd.							
(ix) Elsewhere in Asia	2,939	1,662	1,277	1	61	45	16
Rural—92	166	106	60	E—Countries in America	2	3	4
Rural—93	44	33	11	(i) United States	61	45	16
Rural—94	94	92	2	Rural—92	2	2	..
Rural—95	820	389	431	Rural—93	23	23	..
Urban—37	1,791	1,030	761	Urban—37	36	20	16
Urban—38	24	12	12	F—Countries in Australasia	15	5	10
C—Countries in Europe (excluding U. S. S. R.)	395	211	184	(i) Australia	15	5	10
(i) United Kingdom and Northern Ireland	289	130	159	Rural—95	2	1	1
Rural—92	60	30	30	Urban—37	13	4	9
Rural—93	12	6	6	G—Born at Sea	..	..	..
Rural—94	22	13	9				
Rural—95	68	16	52				
Urban—37	112	50	62				
Urban—38	15	15	..				
(iii) Elsewhere in Europe (excluding U. S. S. R.)	106	81	25				
Rural—92	15	15	..				
Rural—93	38	38	..				
Rural—94	3	..	3				
Rural—95	2	2	..				
Urban—37	43	26	17				
Urban—38	5	..	5				
D—Countries in Africa	4	4	..				
(i) Union of South Africa	2	2	..				
Rural—93	2	2	..				
(ii) Elsewhere in Africa	2	2	..				
Urban—37	2	2	..				

ABSTRACT OF TABLE DIV

Birthplace for countries outside India but not specifically mentioned in table DIV

Countries where born	Persons			Males	Females
	Persons	Males	Females		
1	2	3	4		
Elsewhere in Asia	2,939	1,662	1,277		
Tibet	2,250	1,426	824		
Rural—92	132	81	51		
Rural—93	34	29	5		
Rural—94	39	39	..		
Rural—95	317	265	52		
Urban—37	1,706	1,001	705		
Urban—38	22	11	11		

TABLE 1.25—DIV—MIGRANTS—concl.

ABSTRACT OF TABLE DIV—concl'd.

Countries where born	Persons		Males	Females	Countries where born	Persons		Males	Females
	1	2	3	4		1	2	3	4
Bhutan	.	683	230	453	France	.	.	.	.
Rural—92	.	32	23	9	Rural—93	.	.	.	.
Rural—93	.	10	4	6	Rural—94	.	.	.	.
Rural—94	.	54	52	2					
Rural—95	.	501	122	379	Holland				
Urban—37	.	84	28	56	Rural—93	.	.	.	.
Urban—38	.	2	1	1	Czechoslovakia	.	.	.	.
	.				Rural—93	.	.	.	.
Iran	.	5	5	..	Urban—37	.	.	.	.
Rural—92	.	2	2	..	Urban—38	.	.	.	.
Rural—94	.	1	1	..					
Rural—95	.	2	2	..	Sweden	.	.	.	.
Indonesia					Rural—95	.	.	.	.
Urban—37	.	1	1	..	Urban—37	.	.	.	.
(ii) Elsewhere in Africa	.	2	2	..					
Egypt					Finland	.	.	.	.
Urban—37	.	2	2	..	Rural—95	.	.	.	.
(iii) Elsewhere in Europe	.	106	81	25	Urban—37	.	.	.	.
Italy	.	17	17	..					
Rural—92	.	12	12	..	Germany	.	.	.	.
Rural—93	.	3	3	..	Rural—94	.	.	.	.
Urban—37	.	2	2	..	Urban—37	.	.	.	.
Spain									
Rural—92	.	3	3	..	Greece				
Belgium	.	45	42	3	Urban—37	.	.	.	.
Rural—93	.	31	31	..					
Urban—37	.	14	11	3	Denmark				
	.				Urban—37	.	.	.	.

TABLE 1.25—DIV—SUBSIDIARY TABLE OF MIGRANTS

Total population born in other States of India but not within the State of enumeration																					
Persons		Males		Females		Bihar		Orissa		Assam		Sikkim		Himachal Pradesh		Madhya Pradesh		Punjab			
						Males		Females		Males		Females		Males		Females		Males		Females	
I	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18				
DARJEELING DISTRICT																					
I	1,951	830	1,121	523	499	..	..	14	8	182	549	..	..	78	7	10	3				
II	2,258	1,213	1,045	795	766	3	23	7	8	172	192	..	..	218	39	3	..				
III	648	402	246	229	138	13	..	10	..	87	93	..	..	48	4	2	..				
IV	253	146	107	31	18	..	..	..	1	1	1	..	..	7	..	79	..				
V	15,450	9,609	5,841	5,898	3,706	774	258	141	48	1,484	1,439	..	..	207	211	845	125				
VI	5,912	4,571	1,341	2,838	665	14	1	56	8	130	116	..	..	69	39	92	11				
VII	2,362	1,326	1,036	924	835	39	2	46	30	43	45	4	..	27	15	..	47				
VIII	12,012	7,045	4,967	3,072	2,657	92	43	189	81	1,396	1,829	1	..	171	39	566	80				
Total	40,846	25,142	15,704	14,310	9,284	935	327	463	184	3,495	4,264	5	..	825	354	1,597	345				
CHANDERNAGORE																					
		Uttar Pradesh		Rajasthan		Hyderabad		Bombay		Mysore		Travancore- Cochin		Kashmir		Tripura		Madras			
		Males		Females		Males		Females		Males		Females		Males		Females		Males		Females	
19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38		
I	..	..	21	48	..	7	..	..	2	..	..	..	..	..	..	..	..	..	..	..
II	..	..	7	10	3	5	..	..	..	..	..	..	..	..	..	..	..	..	5	2	
III	..	..	12	3	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	8	
IV	..	..	6	8	22	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
V	..	..	186	32	49	18	..	..	17	4	..	..	..	..	..	..	..	..	8	..	
VI	..	..	853	342	487	144	10	..	19	15	..	..	..	..	..	..	..	..	3	..	
VII	..	..	172	14	53	38	..	..	2	..	1	2	..	10	..	..	5	5	3	3	
VIII	..	3	791	108	247	32	71	9	215	62	2	1	..	4	3	2	..	203	20	20	
Total	3	3	2,048	565	862	244	81	9	255	81	3	3	20	..	14	3	2	5	224	33	

**TABLE 1.26—DV—DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF
ARRIVAL IN INDIA**

District of Origin in Pakistan	1946		1947													
			January		February		March		April		May		June		July	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1 Kusthia	..	7	9	5	5	1	9	10	..	..	1	..	13	11	..	..
2 Jessore	3	1	..	..	5	8	..	..	..	..	2	3	3	6	3	4
3 Khulna	..	..	2	..	1	..	..	..	..	..	7	4	1	..	1	1
4 Rajshahi	1	..	1	1	..	..	..	1	1	1	..	..	..	..	..	1
5 Dinajpur	4	7	11	5	2	16	16	..	..	2	5	..	..	..	1	1
6 Rangpur	3	18	3	3	12	21	1	8	6	3	..	..	4	1	2	3
7 Bogra	1	..	..	1	6	6	1	..	..	..	1	1	3	2	2	..
8 Pabna	1	3	1	1	..	..	5	2	3	3	5	1	4	2	3	7
9 Dacca	13	14	12	12	12	8	13	15	12	6	15	12	15	18	16	14
10 Mymensingh	9	3	4	4	5	..	6	3	3	4	4	7	12	10	1	1
11 Faridpur	13	12	3	2	..	..	7	6	3	4	4	3	6	9	6	2
12 Tipperah	7	4	3	..	..	..	2	1	..	..	..	..	1	..	6	8
13 Noakhali	21	14	1	1	5	4	..	..	..	1	..	..	4	5	1	..
14 Chittagong	..	..	..	..	2	..	..	..	1	2	..	..	3	3	..	..
15 Sylhet	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
16 Bakharganj	1	1	5	6	..	..	..	1	..	..	4	5	7	1	3	5
17 West Punjab	..	..	..	..	..	..	12	5	4	..	7	3	..	..	3	..
18 Sindh	..	..	..	..	..	..	2	4	..	..	..	..	..	..	..	2
19 N. W. F. P.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	77	84	55	41	55	64	74	58	33	26	55	39	76	68	48	49

TABLE 1.26—DV—DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF ARRIVAL IN INDIA—contd.

District of Origin in Pakistan	1947														Total of 1947	
	August		September		October		November		December		Month not stated		Males		Females	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1 Kusthia	14	7	9	4	9	11	18	6	13	10	..	..	100	65	30	31
2 Jessore	33	33	4	6	18	15	21	19	5	1	..	..	94	95	..	..
3 Khulna	19	12	7	5	7	9	5	5	7	8	..	..	57	44	..	..
4 Rajshahi	29	25	8	3	6	..	6	4	2	5	..	..	53	41	..	..
5 Dinajpur	19	7	5	4	6	7	3	2	21	13	..	..	89	57	..	..
6 Rangpur	79	70	31	30	60	39	8	1	13	11	..	..	219	190	..	..
7 Bogra	35	21	10	7	10	6	6	10	25	17	..	..	99	71	..	..
8 Pabna	37	34	28	17	18	14	22	13	13	15	..	..	139	109	..	..
9 Dacca	144	74	76	82	50	36	70	59	43	36	..	..	478	372	..	..
10 Mymensingh	60	56	48	24	20	15	33	26	36	10	..	..	232	140	..	..
11 Faridpur	45	22	30	22	17	14	4	7	10	9	..	..	135	100	..	..
12 Tipperah	29	17	11	2	6	1	7	8	6	1	..	..	71	38	..	..
13 Noakhali	17	14	6	7	18	13	6	4	13	1	..	..	71	50	..	..
14 Chittagong	29	30	23	11	12	8	4	..	7	6	..	..	81	60	..	..
15 Sylhet	4	3	3	4	..	2	..	..	..	..	..	..	7	9	..	..
16 Bakharganj	16	16	8	10	1	..	5	..	..	..	..	..	49	44	..	..
17 West Punjab	32	14	20	16	5	2	3	3	5	4	..	..	91	47	..	..
18 Sindh	6	..	..	..	1	5	..	..	..	..	..	..	9	11	..	..
19 N.W. F. P.	3	2	..	..	..	..	..	..	..	..	..	..	3	2	..	..
Total	650	437	327	254	264	197	221	167	219	147	..	..	2,077	1,545	..	..

**TABLE 1.26--DV--DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF
ARRIVAL IN INDIA--contd.**

District of Origin in Pakistan	1948											
	January		February		March		April		May		June	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1 Kusthia	32	33	34	35	36	37	38	39	40	41	42	43
2 Jessore	13	16	8	9	23	17	6	3	8	8	6	4
3 Khulna	11	8	36	23	12	1	..	..	6	8	12	11
4 Rajshahi	8	11	7	12	12	6	7	6	12	10	8	7
5 Dinajpur	7	11	9	4	6	2	2	3	3	3	4	4
6 Rangpur	27	34	20	5	12	14	35	3	15	28	22	2
7 Bogra	15	17	58	51	67	42	22	17	14	12	41	35
8 Pabna	..	..	30	27	18	15	15	..	3	2	11	8
9 Dacca	46	20	22	18	37	16	23	17	14	6	28	16
10 Mymensingh	82	67	64	51	92	73	43	30	44	36	70	37
11 Faridpur	50	29	55	17	45	33	4	..	18	7	39	29
12 Tipperah	40	16	26	25	24	24	15	10	7	6	18	7
13 Noakhali	..	1	1	..	2	2	14	5	9	2	1	..
14 Chittagong	8	3	8	2	..	..	6	3	..	..	..	..
15 Sylhet	..	..	1	..	5	..	3	2	..	..	5	2
16 Bakarganj	6	1	3	..	5	4	4	6	2	..	16	9
17 West Punjab	1	..	..	..	..	..	4	..	..	..	1	..
18 Sindh	..	..	..	..	..	..	..	..	..	..	1	..
19 N. W. F. P.	..	..	..	..	..	..	..	..	..	..	..	..
Total	314	241	349	244	385	250	213	107	157	128	294	179
												110
												112

**TABLE 1.26—DV—DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF
ARRIVAL IN INDIA—contd.**

District of Origin in Pakistan	1948														Total of 1948	
	August		September		October		November		December		Month not stated					
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		
1 Kuthia	46	47	48	49	50	51	52	53	54	55	56	57	58	59	107	104
2 Jessore	6	3	10	15	8	8	6	8	12	9	..	..	..	..	116	77
3 Khulna	12	6	6	9	4	..	7	6	2	2	..	..	..	..	66	66
4 Rajshahi	..	1	3	1	..	1	4	7	1	..	..	..	..	..	37	39
5 Dinajpur	1	2	..	1	1	..	3	7	..	1	..	..	..	..	161	107
6 Rangpur	9	6	8	6	5	4	4	5	3	..	..	..	..	..	329	273
7 Bogra	25	18	17	12	23	30	23	17	11	7	..	..	..	..	106	71
8 Pabna	3	..	2	..	14	13	8	6	1	..	..	..	..	..	242	164
9 Dacca	5	2	5	5	11	11	16	12	12	17	..	..	..	..	685	541
10 Mymensingh	32	25	49	43	43	24	88	77	37	26	..	..	..	..	273	167
11 Faridpur	8	6	24	16	8	6	16	19	1	3	..	..	..	..	196	121
12 Tipperah	8	5	6	4	20	10	7	5	22	1	..	..	..	..	40	16
13 Noakhali	4	6	7	..	..	..	..	..	..	..	..	..	..	..	32	14
14 Chittagong	6	3	1	1	1	..	..	2	..	..	..	..	..	..	36	24
15 Sylhet	1	1	2	2	1	..	2	..	..	..	..	..	..	..	15	4
16 Bakharganj	1	..	..	..	..	..	..	..	..	..	..	..	..	..	45	37
17 West Punjab	1	5	2	..	..	4	1	..	1	2	..	..	..	..	19	3
18 Sindh	5	3	1	..	..	..	7	..	..	..	..	..	..	..	2	..
19 N. W. F. P.	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Total	127	92	143	115	139	111	193	171	103	68	..	..	2,507	1,818		

**TABLE 1.26--DV--DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF
ARRIVAL IN INDIA--contd.**

District of Origin in Pakistan	1949													
	January		February		March		April		May		June		July	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1 Kusthia	60	61	62	63	64	65	66	67	68	69	70	71	72	73
2 Jessore	8	4	..	2	1	..	5	2	2	5	3	3	..	..
3 Khulna	4	4	..	2	6	3	3	4	..	..	10	10	1	2
4 Rajshahi	..	..	2	8	7	1	5	7	5	1	1	..	..	..
5 Dinajpur	4	..	10	5	4	2	5	5	..	..	1	1	7	..
6 Rangpur	7	1	11	10	33	31	10	3	6	1	3	3	2	2
7 Bogra	26	19	20	15	30	26	54	34	26	16	11	11	10	2
8 Pabna	4	6	13	8	4	1	2	3	6	10	1	2	..	2
9 Dacca	18	11	6	4	11	15	3	3	7	10	5	3	5	10
10 Mymensingh	56	37	26	24	37	27	27	22	29	24	40	40	9	10
11 Faridpur	17	2	19	7	28	15	5	1	7	11	17	11	10	6
12 Tipperah	11	5	7	..	1	..	3	..	1	3	8	17	14	3
13 Noakhali	2	..	1	..	3	6	2	3	..	..	..	..	..	..
14 Chittagong	8	3	1	3	..	..	1	..	..	2	1	..	..	..
15 Sylhet	1	1	..	..	3	3	6	9	..	..	5	3	3	..
16 Bakarganj	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17 West Punjab	5	10	5	..	3	4	1	..	..	..	3	..	..	..
18 Sindh	2	..	..	..	1	1	3	..	..	..	..	1	..	..
19 N. W. F. P.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	173	103	121	88	172	135	135	96	89	83	107	105	61	37

**TABLE 1.26—DV—DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF
ARRIVAL IN INDIA—*contd.***

District of Origin in Pakistan	1949														Total of 1949	
	August		September		October		November		December		Month not stated					
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females				
1 Kuthia	74	75	76	77	78	79	80	81	82	83	84	85	86	87		
2 Jessore	..	..	..	..	1	1	..	..	14	21	..	..	34	38		
3 Khulna	2	2	11	1	..	..	2	2	3	1	..	..	42	31		
4 Rajshahi	..	..	1	..	..	..	..	..	..	..	..	..	21	17		
5 Dinajpur	..	..	..	..	..	..	..	3	..	..	..	..	31	16		
6 Rangpur	1	6	2	..	5	4	3	1	2	4	..	..	85	66		
7 Bogra	1	8	10	6	18	10	7	8	14	8	..	..	225	163		
8 Pabna	..	..	6	7	1	..	3	2	4	5	..	..	44	46		
9 Dacca	3	2	9	3	7	14	16	23	12	8	..	..	102	106		
10 Mymensingh	16	4	22	17	27	22	34	37	13	7	..	..	336	271		
11 Faridpur	12	8	5	5	22	13	9	5	7	8	..	..	158	92		
12 Tipperah	2	..	10	20	7	4	..	2	..	..	..	..	64	54		
13 Noakhali	5	..	..	..	2	..	1	..	..	..	..	..	16	9		
14 Chittagong	7	2	..	..	2	1	1	..	3	1	..	..	24	12		
15 Sylhet	1	..	..	1	1	2	..	..	3	..	..	..	23	19		
16 Bakarganj	..	..	..	..	..	..	..	..	..	..	..	..	..	..
17 West Punjab	1	3	4	6	..	..	4	7	..	..	..	..	26	30		
18 Sindh	1	..	..	..	1	..	..	..	..	..	..	..	8	2		
19 N W. F. P.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	52	35	80	66	94	71	80	90	75	63	..	..	1,239	972		

TABLE 1.26—DV—DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF ARRIVAL IN INDIA—*contd.*

District of Origin in Pakistan	1950													
	January		February		March		April		May		June		July	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
1 Kusthia	88	89	90	91	92	93	94	95	96	97	98	99	100	101
2 Jessore	9	6	6	6	15	26	5	6	5	3	2	1	11	2
3 Khulna	1	..	6	10	9	7	4	3	1	..	1	..	..	..
4 Rajshahi	13	10	6	9	9	1	5	3	1	..	4	..	1	2
5 Dinajpur	5	4	10	17	15	24	17	10	2	..	5	1	10	6
6 Rangpur	15	15	5	9	353	263	253	251	56	40	7	33	2	1
7 Bogra	35	19	54	36	125	103	126	91	30	22	17	21	15	13
8 Pabna	12	7	20	9	31	18	18	5	10	8	2	2	5	3
9 Dacca	22	11	25	30	37	42	13	11	9	13	7	9	3	2
10 Mymensingh	73	62	73	56	163	114	104	70	92	68	3	15	18	11
11 Faridpur	22	21	60	38	59	57	63	63	29	23	21	25	15	9
12 Tipperah	18	7	36	14	42	25	17	17	7	22	14	4	6	5
13 Noakhali	..	..	6	2	17	9	3	1	..	..	..	..	2	..
14 Chittagong	4	..	2	2	..	..	2	3	3	1	3	5	4	2
15 Sylhet	5	6	1	..	6	..	5	5	4	..	6	3	..	..
16 Bakarganj	5	4	5	12	..	12	..	..	1	..	2	2	2	..
17 West Punjab	..	1	6	5	17	16	10	6	..	..	2	..	1	4
18 Sindh	..	..	4	..	..	..	..	..	..	..	..	..	..	2
19 N. W. F. P.	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Total	239	173	325	255	898	717	645	545	250	200	97	121	95	62

TABLE 1.26—DV—DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF ARRIVAL IN INDIA—contd.

District of Origin in Pakistan	1950														Total of 1950	
	August		September		October		November		December		Month not stated					
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		
1 Kusthia	2	1	6	3	..	..	1	3	..	..	..	..	62	57
2 Jessore	2	6	1	..	1	..	2	2	4	6	..	..	32	34
3 Khulna	1	..	..	..	..	..	..	..	..	..	..	..	40	25
4 Rajshahi	5	6	2	..	4	4	..	..	..	..	..	..	75	72
5 Dinajpur	..	..	10	10	6	6	16	2	24	1	..	..	747	631
6 Rangpur	25	18	6	3	3	..	2	1	15	11	..	..	453	338
7 Bogra	1	..	..	1	2	..	3	..	5	3	..	..	109	56
8 Pabna	..	3	17	13	2	..	1	..	12	9	..	..	148	143
9 Dacca	23	20	27	13	27	21	4	5	19	8	..	..	626	463
10 Mymensingh	6	1	22	11	16	10	4	3	5	1	..	..	322	262
11 Faridpur	2	4	3	..	12	12	5	4	4	13	..	..	166	127
12 Tipperah	..	1	1	..	2	2	..	..	..	1	..	..	31	16
13 Noakhali	..	..	..	..	..	1	2	2	4	..	..	..	24	16
14 Chittagong	5	2	..	..	8	7	..	..	8	2	..	..	48	25
15 Sylhet	..	2	..	..	1	3	2	..	..	..	..	..	18	35
16 Bakarganj	1	3	3	..	..	..	..	..	..	2	..	..	40	37
17 West Punjab	..	..	..	..	..	..	..	..	..	..	..	..	4	2
18 Sindh	..	..	..	..	..	..	..	..	..	..	..	..	1	..
19 N. W. F. P.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Total	73	67	98	54	84	66	42	22	100	57	..	..	2,946	2,339

**TABLE 1.26—DV—DISPLACED PERSONS BY DISTRICT OF ORIGIN AND DATE OF
ARRIVAL IN INDIA—concl'd.**

District of Origin in Pakistan	1951										Grand total of 1946-51	
	January		February		Month not stated		Total of 1951					
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		
	116	117	118	119	120	121	122	123	124	125		
1 Kusthia	2	1	..	..	..	..	2	1	305	272
2 Jessore	2	3	2	..	..	..	4	3	291	241
3 Khulna	1	1	1	..	..	..	2	1	186	153
4 Rajshahi	..	..	..	..	..	..	..	..	197	168
5 Dineajpur	11	2	21	7	..	..	32	9	1,118	877
6 Rangpur	6	1	2	8	..	..	8	9	1,237	991
7 Bogra	1	..	..	..	..	..	1	..	360	244
8 Pabna	3	1	..	..	..	..	3	1	635	516
9 Dacca	22	11	3	3	..	..	25	14	2,163	1,675
10 Mymensingh	1	..	1	1	..	..	2	1	996	665
11 Faridpur	3	..	1	2	..	..	4	2	578	416
12 Tipperah	2	..	..	..	..	..	2	..	167	83
13 Noakhali	..	1	..	..	..	..	..	1	172	107
14 Chittagong	..	7	..	..	..	..	..	7	188	135
15 Sylhet	..	..	..	..	..	..	..	..	48	48
16 Bakharganj	..	..	..	..	..	..	..	..	161	149
17 West Punjab	..	..	..	..	..	..	..	..	114	54
18 Sindh	..	..	..	..	..	..	..	..	12	11
19 N. W. F. P.	..	..	..	..	..	..	..	..	3	2
Total	54	28	31	21	..	..	85	49	8,931	6,897

TABLE 1.27—DVI—NON-INDIAN NATIONALS

District and Tract	Total																			
	Persons		Males		Females		Pakistani		British		Irish		Chinese		Burmese		Italian			
					Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16					
DARJEELING DISTRICT																				
Total	7,457	4,916	2,541	3,672	1,683	232	195	4	3	256	158	91	15	15	1
Rural	3,279	1,860	1,419	1,203	965	129	134	3	..	35	7	46	5	12	..
Urban	4,178	3,056	1,122	2,469	718	103	61	1	3	221	151	45	10	3	1
Rural—92	606	350	256	23	50	67	61	3	..	3	..	34	4	12	..
Rural—93	209	157	52	13	6	20	9	..	..	2	..	..	..	..	..
Rural—94	2,256	1,233	1,023	1,162	909	23	13	..	..	19	7	..	1	..	..
Rural—95	208	120	88	5	..	19	51	..	..	11	..	12	..	..	..
Urban—37	1,026	589	437	113	98	97	61	1	3	220	150	45	10	3	1
Urban—38	3,152	2,467	685	2,356	620	6	..	..	..	1	1	..	..	..	..

	Belgian		Tibetan		Bhutanese		Nepali		Armenian		Spanish		American	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Total	.	.	.	.	.	.	.	.	.	.	.	.	.	.
Rural	19	.	56	26	1	.	319	264	2	.	3	.	20	4
Urban	3	.	68	10	1	.	102	64	.	.	.	.	22	74
Rural—92	.	.	25	24	1	.	175	117	2	.	3	.	.	.
Rural—93	19	.	17	.	.	.	57	35	.	.	.	.	20	.
Rural—94	.	.	.	.	.	.	29	90	.	.	.	.	.	.
Rural—95	.	.	14	2	.	.	58	22	.	.	.	.	.	4
Urban—37	3	.	67	10	.	.	102	.	.	.	.	.	22	74
Urban—38	.	.	1	.	1	.	.	64	.	.	.	.	.	.

TABLE 1.27—DVI—NON-INDIAN NATIONALS—*concl'd.*

District and Tract	Australian		French		German		Portuguese		Dutch		Swedish		Russian	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	31	32	33	34	35	36	37	38	39	40	41	42	43	44
DARJEELING DISTRICT														
Total	4	13	2	4	1	11	4	..	1	..	4	4	1	..
Rural	1	7	2	1	1	3	4	..	1	..	1	1	..	..
Urban	3	6	..	3	..	8	..	..	..	..	3	3	1	..
Rural—92	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—93	1	1	2	..	1	..	4	..	1	..	..	1	..	..
Rural—94	..	..	..	1	..	2	..	..	..	..	..	..	..	..
Rural—95	..	6	..	..	..	1	..	..	..	..	1	..	..	..
Urban—37	3	6	..	3	..	8	..	..	..	..	3	3	1	..
Urban—38	..	..	..	..	..	..	..	..	..	..	..	..	..	..
	Danish		Iranian		Mongolian		Greek		Czech		Finish		Goanese	
	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females	Males	Females
	45	46	47	48	49	50	51	52	53	54	55	56	57	58
Total	2	2	3	2	6	..	2	..	..	2	..	3	..	1
Rural	..	..	2	..	..	..	..	..	..	..	..	..	..	..
Urban	2	2	1	2	6	..	2	..	..	2	..	3	..	1
Rural—92	..	..	2	..	..	..	..	..	..	..	..	..	..	..
Rural—93	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—94	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Rural—95	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Urban—37	2	2	1	2	6	..	2	..	..	2	..	3	..	1
Urban—38	..	..	..	..	..	..	..	..	..	..	..	..	..	..

VITAL STATISTICS

TABLE 2.1—BIRTH AND DEATH RECORD—1941-50

Births and Deaths		1941-50	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1		2	3	4	5	6	7	8	9	10	11	12
1 Births												
Male	.	54,244	5,900	5,533	4,907	3,878	5,302	5,392	5,861	5,776	5,886	5,809
Female	.	51,581	5,408	5,275	4,781	3,765	4,995	5,088	5,600	5,542	5,707	5,420
2 Birth Rate (a)												
Male	.	14.4	15.7	14.7	13.0	10.3	14.1	14.3	15.6	15.3	15.6	15.4
Female	.	13.7	14.4	14.0	12.7	10.0	13.3	13.5	14.9	14.7	15.2	14.4
3 Birth Rate (b)												
Male	.	14.4	15.7	14.7	13.0	10.4	14.3	14.5	15.7	15.3	15.5	15.2
Female	.	13.7	14.4	14.0	12.7	10.1	13.5	13.7	15.0	14.7	15.0	14.2
4 Female Births												
reported per 1,000 male births		950.9	916.6	953.4	974.3	970.9	942.1	943.6	955.6	959.5	969.6	933.0
5 Deaths												
Male	.	51,932	5,576	5,476	5,870	6,013	5,672	5,624	4,416	4,469	4,215	4,601
Female	.	47,118	5,141	4,797	5,388	5,515	5,206	4,411	4,115	4,293	4,051	4,141
6 Death Rate (c)												
Male	.	25.5	27.9	27.4	29.4	30.1	28.4	23.1	22.1	22.4	21.1	23.0
Female	.	26.7	29.1	27.2	30.5	31.2	29.8	25.0	23.3	24.3	23.0	23.5
7 Death Rate (d)												
Male	.	25.6	27.9	27.4	29.4	30.4	28.9	23.5	22.3	22.4	21.0	22.7
Female	.	26.7	29.2	27.1	30.4	31.4	30.2	25.3	23.4	24.2	22.7	23.0
8 Female Deaths												
reported per 1,000 male deaths		925.2	922.0	876.0	917.9	917.2	928.4	953.9	931.8	960.6	961.1	900.0

(a) Number of births per 1,000 of the total population calculated on the population of 1941.

(b) Number of births per 1,000 of the total population calculated on the estimated population on the 30th June of each year.

(c) Number of deaths per 1,000 of the same sex calculated on the population of 1941.

(d) Number of deaths per 1,000 of the same sex calculated on the estimated population on the 30th June of each year.

Source :—Directorate of Health Services, West Bengal.

TABLE 2.2—DEATHS FROM SELECTED CAUSES

Cause of Death				1941-50	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1				2	3	4	5	6	7	8	9	10	11	12
1 Cholera														
Actual Deaths														
Male	.	.	.	21	..	27	78	26	16	15	13	10	6	21
Female	.	.	.	13	..	22	45	17	16	9	3	..	4	4
Death Rate														
Male	.	.	.	.1	..	.1	.4	.1	.1	.1	.1	.1	.03	.1
Female	.	.	.	.1	..	.1	.3	.1	.1	.1	.02	.1	.02	.1
2 Fever														
Actual Deaths														
Male	.	.	.	2,819	3,216	3,015	3,171	3,679	3,436	2,578	2,462	2,452	2,014	2,165
Female	.	.	.	2,508	2,809	2,518	2,872	3,199	3,073	2,353	2,212	2,272	1,864	1,851
Death Rate														
Male	.	.	.	14.1	16.1	15.1	15.9	18.4	17.2	12.9	12.3	12.3	10.1	10.8
Female	.	.	.	14.2	16.3	14.3	16.3	18.1	17.4	13.3	12.5	12.9	10.6	10.4
3 Small Pox														
Actual Deaths														
Male	.	.	.	13	2	..	6	15	34	8	19	2	3	38
Female	.	.	.	7	..	3	1	10	19	1	9	..	6	24
Death Rate														
Male	.	.	.	.1	.01	..	.03	.03	.2	.04	.1	.01	.02	.2
Female	.	.	.	.04	..	.02	.1	.1	.1	.01	.1	..	.03	.1
4 Plague														
Actual Deaths														
Male	.	.	.	..	..	..	..	..	..	..	..	..	..	..
Female	.	.	.	..	..	..	..	..	..	..	..	..	..	..
Death Rate														
Male	.	.	.	..	..	..	..	..	..	..	..	..	..	..
Female	.	.	.	..	..	..	..	..	..	..	..	..	..	..
5 Dysentery, Diarrhoea and Enteric Group of Fevers														
Actual Deaths														
Male	.	.	.	433	460	432	551	495	497	387	382	403	340	386
Female	.	.	.	358	398	317	424	401	467	343	276	351	267	337
Death Rate														
Male	.	.	.	2.2	2.3	2.2	2.8	2.5	2.4	1.9	1.9	2.0	1.7	1.9
Female	.	.	.	2.0	2.3	1.8	2.4	2.3	2.6	1.9	1.6	2.0	1.5	1.9

TABLE 2.2—DEATHS FROM SELECTED CAUSES—concl'd.

Cause of Death	1941-50	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1	2	3	4	5	6	7	8	9	10	11	12
6 Respiratory diseases other than T. B. of Lungs											
Actual Deaths											
Male . . .	388	446	480	407	412	433	349	307	365	364	317
Female . . .	358	394	395	405	391	385	312	314	360	312	315
Death Rate											
Male . . .	1.9	2.2	2.4	2.0	2.1	2.2	1.7	1.5	1.8	1.8	1.6
Female . . .	2.0	2.2	2.2	2.3	2.2	2.2	1.8	1.7	2.0	1.8	1.8
7 Suicide											
Actual Deaths											
Male . . .	18	15	12	18	19	20	19	14	19	28	18
Female . . .	7	4	5	2	12	3	4	9	10	16	5
Death Rate											
Male . . .	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1	.1
Female . . .	.04	.02	.03	.01	.1	.02	.02	.1	.1	.1	.03
8 Child Birth											
Actual Deaths											
Female . . .	112	121	140	113	102	121	103	110	104	136	67
Death Rate											
Female . . .	.6	.7	.8	.6	.6	.7	.6	.6	.6	.8	.4
9 Malaria											
Actual Deaths											
Male . . .	1,261	1,390	1,417	1,671	1,899	1,610	1,196	1,083	878	703	766
Female . . .	1,040	1,102	1,144	1,425	1,608	1,320	1,002	884	685	600	626
Death Rate											
Male . . .	6.3	7.0	7.1	8.4	9.5	8.1	6.0	5.4	4.4	3.5	3.8
Female . . .	5.9	6.2	6.5	8.1	9.1	7.5	5.7	5.0	3.9	3.4	3.5
10 Kala-azar											
Actual Deaths											
Male . . .	99	99	133	149	131	99	103	91	73	62	53
Female . . .	68	58	79	91	107	90	73	63	62	30	25
Death Rate											
Male . . .	.5	.5	.7	.7	.7	.5	.5	.5	.4	.3	.4
Female . . .	.4	.3	.4	.5	.6	.5	.4	.4	.4	.2	.1
11 T. B. of Lungs											
Actual Deaths											
Male . . .	271	271	263	262	259	246	236	290	308	296	281
Female . . .	243	222	264	246	245	232	246	248	243	264	215
Death Rate											
Male . . .	1.4	1.4	1.3	1.3	1.3	1.2	1.2	1.5	1.5	1.5	1.4
Female . . .	1.4	1.3	1.5	1.4	1.4	1.3	1.4	1.4	1.4	1.5	1.2
12 Snake Bite											
Actual Deaths											
Male . . .	3	5	2	3	3	1	6	3	3	4	4
Female . . .	3	4	2	5	3	5	1	2	6	1	2
Death Rate											
Male . . .	.02	.03	.01	.02	.02	.01	.03	.02	.02	.02	.02
Female . . .	.02	.02	.01	.03	.02	.03	.01	.01	.03	.01	.01

The Death Rate is the annual death rate per 1,000 of the same sex calculated on the population of 1941.

Source :—Directorate of Health Services, West Bengal.

AGRICULTURE
TABLE 3.1—PERSONS CULTIVATING OWN LAND OR EMPLOYING BARGADAR WITH
SIZE OF LAND OWNED AND/OR GIVEN IN BHAG

DARJEELING DISTRICT	Area of all cultivated lands owned (rent-free or for which rent is paid) (in acres)	Total number of persons	Number of persons employing no bargadars	Number of persons employing bargadars for the following out of total land owned (in acres)																
				0 1-01 2-01 3-01 4-01 5-01 6-01 7-01 8-01 9-01 10-01 15-01 20-01 25-01 33-34																
				Total (Cols. 5 to 19)	to 1-00	to 2-00	to 3-00	to 4-00	to 5-00	to 6-00	to 7-00	to 8-00	to 9-00	to 10-00	to 15-00	to 20-00	to 25-00	to 33-34	wards up.	
1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
	0 to 1-00	1,366	1,293	73	73															
	1-01 to 2-00	2,296	2,238	58	19	39														
	2-01 to 3-00	2,199	2,137	62	16	5	51													
	3-01 to 4-00	2,280	2,181	99	4	15	6	74												
	4-01 to 5-00	1,805	1,733	72	11	6	9	2	44											
	5-01 to 6-00	1,131	1,034	97	7	11	22	14	6	43										
	6-01 to 7-00	1,796	1,718	78	6	11	17	13	5	24	31									
	7-01 to 8-00	741	664	77	2	4	4	26	5	1	4									
	8-01 to 9-00	356	307	49	3	5	5	5	18	3	2	6								
	9-01 to 10-00	481	398	83	4	4	4	8	31	6	2	2	25							
	10-01 to 15-00	1,280	1,074	206	6	4	12	14	29	15	11	29	52							
	15-01 to 20-00	439	330	109	1	2	7	1	3	3	12	6	10	38	23					
	20-01 to 25-00	216	160	56	1	2	2	1	1	4	6	1	10	12	20					
	25-01 to 33-33	128	80	48	1	1	2	1	1	1	1	1	6	7	10	9	11			
	33-34 upwards	139	65	74	2	1	1	1	1	1	1	1	1	3	4	12	49			
Grand Total For Entire District		15,653	14,412	1,241	145	109	137	158	138	73	50	82	22	67	107	48	33	23	49	
SADAR SUBDIVISION (excluding Darjeeling Town)																				
	0 to 1-00	539	535	4	4	17														
	1-01 to 2-00	946	925	21	4	3	4													
	2-01 to 3-00	792	784	8	1	5	3	4												
	3-01 to 4-00	515	501	14	2	3	4		3											
	4-01 to 5-00	413	400	13	3	3	5			1										
	5-01 to 6-00	258	249	9	2	1	7	3												
	6-01 to 7-00	208	194	14	2	3	1	1												
	7-01 to 8-00	154	148	6	2	3	1	1												
	8-01 to 9-00	104	100	4	2	2	1	1												
	9-01 to 10-00	118	110	8	2	2	4	5												
	10-01 to 15-00	245	212	33	2	2	4	1	3	5	1	4	5	6	4	3	1			
	15-01 to 20-00	96	73	23	1	1	4		1		3	1	1	1	3	1	1			
	20-01 to 25-00	38	29	9	1	1	1													
	25-01 to 33-33	26	18	8	1	1	1													
	33-34 upwards	11	6	5	1	1	1													
Grand Total		4,463	4,284	179	21	40	35	14	16	6	6	2	5	8	15	5	3	3		

**TABLE 3.1—PERSONS CULTIVATING OWN LAND OR EMPLOYING BARGADAR WITH
SIZE OF LAND OWNED AND/OR GIVEN IN BHAG—*contd.***

Area of all cultivated lands owned (rent-free or for which rent is paid) (in acres)	Number of persons employing bargadars for the following out of total land owned (in acres)																		
	Total																		
	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid	persons of which rent is paid
0 to 1.00	168	161	7	7	4	3													
1.01 to 2.00	196	189	7	7	4	3													
2.01 to 3.00	148	146	2	2	1	1	1												
3.01 to 4.00	115	112	3	3	1	1	1												
4.01 to 5.00	23	21	2	2	1	1	1												
5.01 to 6.00	55	53	2	2	1	1	1												
6.01 to 7.00	47	47	2	2	1	1	1												
7.01 to 8.00	23	21	2	2	1	1	1												
8.01 to 9.00	16	16	1	1	1	1	1												
9.01 to 10.00	15	11	4	2	2	2	2												
10.01 to 15.00	32	29	3	3	1	1	1												
15.01 to 20.00	23	18	5	5	1	1	1												
20.01 to 25.00	16	14	2	2	1	1	1												
25.01 to 33.33	3	3	1	1	1	1	1												
33.34 upwards	1	1	1	1	1	1	1												
Grand Total	881	842	39	39	16	8	4	4	2	2	1	2	1	2	1	1	1	1	1

KURSEONG SUBDIVISION (excluding Kurseong Town)

SILIGURI SUBDIVISION

0 to 1.00	159	102	57	57	57	17													
1.01 to 2.00	328	302	26	40	3	1	36												
2.01 to 3.00	476	436	75	75	7	6	69												
3.01 to 4.00	952	877	52	52	7	3	2	39											
4.01 to 5.00	721	669	45	45	6	6	12	5	22										
5.01 to 6.00	294	249	32	32	3	3	9	8	3	9	3	19							
6.01 to 7.00	139	107	54	54	1	1	2	5	1	2	2	2	4						
7.01 to 8.00	246	192	30	30	1	1	1	15	3	2	2	2	2	4					
8.01 to 9.00	93	63	64	64	1	1	1	4	3	2	2	2	2	2	22				
9.01 to 10.00	234	170	151	151	1	2	8	19	7	7	7	29	4	4	23	43			
10.01 to 15.00	389	238	72	72	2	2	1	2	2	1	1	9	5	4	29	19			
15.01 to 20.00	151	79	37	37	1	1	1	1	1	1	1	2	1	1	7	9	17		
20.01 to 25.00	94	57	35	35	1	1	1	1	1	1	1	1	1	1	5	9	7	11	
25.01 to 33.33	63	28	62	62	1	1	1	1	1	1	1	1	1	1	2	4	4	11	43
33.34 upwards	102	40																	
Grand Total	4,441	3,609	832	832	79	41	71	125	111	41	22	61	14	51	84	39	28	22	43

TABLE 3.2B—AGRICULTURAL STATISTICS

[illegible]

N. B.—Private tanks include tanks under T. I. scheme.

Source :—Directorate of Agriculture, West Bengal.

TABLE 3.3—CULTIVATED AREA (EXCLUDING ORCHARDS AND GARDENS)—1949-50

Rainfall (1949)				Summer crops	Col. 4 as % of total cultivated area	Winter crops	Col. 6 as % of total cultivated area	Spring crops	Col. 8 as % of total cultivated area	Miscella- neous crops	Col. 10 as % of total cultivated area	Total cultivated area†	Total area in sq. miles	Mean density per sq. mile
1 March to 31 May	1 Sep. to 31 Oct.	Total for these five months												
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
20.62"	31.99"	52.31"	900	0.4%	146,800	64.4%	10,000	4.4%	70,300	30.8%	228,000	1,192	374	

N. B.—Total cultivated area has been taken to be gross cropped area. (Figures relate to the year 1949-50.)

Summer crops include :—Summer rice and summer til.

*Winter crops include :—*Summer rice and summer til.
*Summer crops include :—*Summer rice, Winter rice, Jowar, Bajra, Maize, other Kharif cereals, Kharif pulses, Winter til, Jute, Sunnhemp and other fibres, Bhadoi fodder. *Sugar crops.* Bhadoi fruits and vegetables.

Spring crops include :—Wheat, Barley, other Rabi Cereals, Pulses other than Khanif pulses, Oilseeds other than Til, Cotton, Tobacco, Potato, Rabi fruits and vegetables, Rabi fodder.

and vegetables, raw food.
Miscellaneous Food, miscellaneous Non-food and Cinchona.

Source :—Directorate of Agriculture, West Bengal.

TABLE 3.4—PROGRESS OF CULTIVATION DURING THREE DECADES

Average net area sown (A1) in acres				Average area sown more than once (A2) in acres				Average net area irrigated (A3) in acres				Average area irrigated more than once† (A4) in acres			
1951	1941	1931	1921	1951	1941	1931	1921	1951	1941	1931	1921	1951	1941	1931	1921
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
223,400	186,500	159,300	161,900	26,000	16,900	16,900	10,200	56,487	53,940	37,219	45,750	..	..	3,955	*

How to compile :—(a) Figures are given in unit of acres.

(b) Quinquennial averages are given as follows :—

1951—Five years ending with crop year 1949-50.

1941—Five years ending with crop year 1939-40.

1931—Five years ending with crop year 1929-30.

1921—Five years ending with crop year 1919-20.

*No reliable data are available.

†A4—Gross cropped area irrigated—net area irrigated.

Source :—Directorate of Agriculture, West Bengal.

TABLE 3.5—COMPONENTS OF CULTIVATED AREA DURING THREE DECADES

Unirrigated single-crop cultivation (in acres)				Unirrigated double-crop cultivation (in acres)				Irrigated single-crop cultivation (in acres)				Irrigated double-crop cultivation (in acres)			
1951	1941	1931	1921	1951	1941	1931	1921	1951	1941	1931	1921	1951	1941	1931	1921
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
140,913	115,660	109,136	*	26,000	16,900	12,945	*	56,487	53,940	33,264	*	..	..	3,955	*

*No reliable data are available.

Source :—Directorate of Agriculture, West Bengal.

TABLE 3.6—GOVERNMENT EMBANKMENTS IN MILES

1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
Total length of Government, Embankment, Darjeeling.	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil

Source :—Irrigation and Waterways Department, West Bengal.

TABLE 3.7A—STATEMENT OF LAND UTILISATION IN THE DISTRICT IN 1944-5

	Total for the district	Siliguri
Paddy—		
Total	49,878·70	49,878·70
Aman	48,723·88	48,723·88
Boro	..	..
Aus	1,154·82	1,154·82
Cereals and Pulses—		
Total	..	..
Gram	·27	·27
Wheat	10·43	10·43
Barley	16·24	16·24
Musur	·31	·31
Mug	·25	·25
Maskalai	17·12	17·12
Khesari	..	..
Arahar	124·32	124·32
Maize	534·12	534·12
Other Food Crops—		
Sugarcane	231·40	231·40
Groundnut	·13	·13
Mustard	3,007·92	3,007·92
Til	10·77	10·77
Chillies	24·70	24·70
Potato	541·62	541·62
Onions and garlies	44·62	44·62
Vegetables and others	922·92	922·92
Fibre—		
Jute	1,704·16	1,704·16
Sunn hemp	..	..
Orchards and Others—		
Cocanut	·23	·23
Betelnut	·76	·76
Mango	52·99	52·99
Dates	..	..
Other fruits	90·29	90·29
Pan Boroj	..	..
Bamboo	2,385·27	2,385·27
Others	29,081·26	29,081·26
TOBACCO	294·50	294·50
SPECIFIC CROPS, IF ANY	(ton) 18,450·27	(ton) 18,450·27
TOTAL CROPPED	..	..
DOFASALI	..	..
NET CROPPED AREA	..	..
CURRENT FALLOWS	..	..
Area not available for cultivation—		
Not unculturable area at the end of the year	..	..
Total	16,507·12	16,507·12
Tank	140·92	140·92
Beel, khal, rivers, etc.	6,230·88	6,230·88
Paths, road, bandp, railway lines, etc.	2,842·12	2,842·12
Shops homestead, mosque, temple, etc.	2,809·82	2,809·82
Others, if any	4,483·38	4,483·38
Culturable but not yet cultivated—		
Net culturable waste at the end of the year	..	..
Total	43,334·07	43,334·07
Culturable waste	6,791·71	6,791·71
Bhita, etc.	3,442·55	3,442·55
Grazing ground	6,994·45	6,994·45
Jungles	15,814·91	15,814·91
Playing and camping grounds	91·98	91·98
Others, if any	198·47	198·47
TOTAL AREA	170,036·92	170,036·92

Source :—Agricultural Statistics by Plot to Plot Enumeration in Bengal, 1944-5, Part I; by H. S. M. Ishaque, 1946 : Page 33.

TABLE 3.7B—STATEMENT OF LAND UTILISATION IN THE DISTRICT IN 1944-5
Milan Khasra and Jinishwar Statement

	Total of Hill subdivisions of Darjeeling district	Darjeeling	Kurseong	Kalimpong
Unculturable waste	78,436·04	27,399·34	10,853·45	40,183·25
Culturable waste which does not bear mark of cultivation	59,406·65	26,617·33	2,225·02	30,564·30
AMAN CROP				
Aman paddy	12,617·73	3,228·63	140·13	9,248·97
Millet	26,545·69	9,490·24	1,727·03	15,328·42
Cardamom	5,431·91	2,997·31	329·74	2,104·76
Seasonal vegetables	3,168·83	2,133·43	264·96	770·54
Oranges	1,741·85	506·23	67·38	1,168·24
Others, if any	4,381·31	1,014·86	102·78	3,263·67
Total area under Haimantic crop	53,927·32	19,370·70	2,672·02	31,884·60
MISCELLANEOUS				
Tea	41,151·90	26,104·75	12,272·55	2,774·60
Timber and forest	276,781·19	80,903·45	55,003·53	140,874·21
Quinine	7,759·02	3,169·00	..	4,590·02
Others, if any	16,119·18	7,452·04	3,973·20	4,693·94
Culturable lands bearing mark of cultivation	4,979·69	3,869·91	79·73	1,030·05
Total area of the block	575,321·37	215,805·56	91,634·04	267,881·77
RABI CROP				
Wheat	1,126·04	103·09	2·00	1,020·95
Barley	394·84	71·41	12·00	311·43
Potatoes	1,793·07	1,570·50	93·13	129·44
Seasonal vegetables	1,182·17	1,028·78	126·56	26·83
Seasonal fruits	242·29	179·73	59·62	2·94
Others, if any	1,128·98	548·84	31·60	548·54
Total area under rabi crop	5,866·39	3,501·35	324·91	2,040·18
BHADOI CROP				
Maize	68,019·67	31,647·82	5,931·53	30,440·32
Aus paddy	10·00	..	10·00	..
Seasonal vegetables	1,471·62	1,224·63	78·86	168·13
Seasonal fruits	8·47	3·55	2·15	2·77
Others, if any	87·38	73·70	4·62	9·06
Total area under bhadoi crop	69,647·04	32,949·70	6,077·06	30,620·28
Total area of lands growing more than one crop	38,753·05	15,532·01	1,847·43	21,373·61
Soyabean	860·46	579·10	9·80	271·56
Country vegetables	1,470·12	942·50	121·65	405·97
English vegetables	3,679·85	3,127·10	348·73	204·02
	(mulberry 1·00)			(mulberry 1·00)

Source : Agricultural Statistics by Plot to Plot Enumeration in Bengal, 1944-5, Part I ; by H. S. M. Ishaque, 1946 : Pages 37—45.

TABLE 3.8—ABSTRACT OF CULTURABLE WASTE LAND BLOCKS OF 100 ACRES AND ABOVE IN 1944-45

Scattered plots below 100 acres in size		100 acres and above to below 500 acres		500 acres and above to below 1,000 acres		1,000 acres and above to below 5,000 acres		5,000 acres and above		Total
No. of blocks	Area in acres	No. of blocks	Area in acres	No. of blocks	Area in acres	No. of blocks	Area in acres	No. of blocks	Area in acres	
..	46,609	36	6,132	..	..	..	..	..	..	102,741

Source :—Agricultural Statistics by Plot to Plot Enumeration in Bengal, Part I ; by H. S. M. Ishaque, 1946, Page 105 and Directorate of Agriculture, West Bengal.

***TABLE 3.9—RESULTS OF CROP CUTTING EXPERIMENTS DURING THE YEAR 1944-45**

*Materials are not available.

***TABLE 3.10—RESULTS OBTAINED BY A DETAILED ECONOMIC ENQUIRY MADE IN SELECTED VILLAGES DURING THE MONTH OF OCTOBER 1945**

*Materials are not available.

TABLE 3.11—RAINFALL AND RAINY DAYS—1941-50

Months	1941		1942		1943		1944	
	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall
January	1	0.47	2	1.03	1	0.25	1	0.50
February	1	0.40	2	0.81	3	2.05	4	1.82
March	3	1.97	12	5.84	7	1.64	6	6.12
April	6	4.63	14	8.81	18	8.79	7	3.74
May	19	12.80	7	5.08	11	4.86	14	7.20
June	22	13.62	17	18.86	24	24.10	16	15.09
July	25	27.71	25	26.91	22	20.09	25	33.22
August	24	27.79	23	22.09	26	19.09	19	19.65
September	14	7.32	20	17.23	17	17.29	16	14.39
October	2	0.75	4	2.56	1	0.25	3	8.16
November	3	1.31	Nil	(a)	1	0.17	Nil	Nil
December	2	0.22	Nil	Nil	Nil	0.06	Nil	Nil
Total	122	98.99	126	109.22(c)	131	98.64	111	109.89

	1945		1946		1947		1948	
	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall
January	1	0.20	Nil	Nil	2	0.35	Nil	0.01
February	1	0.50	5	1.80	1	0.11	2	0.62
March	2	1.62	3	0.75	9	3.05	8	2.71
April	10	4.57	15	4.91	8	2.46	15	8.33
May	21	5.97	22	11.71	11	4.79	17	6.69
June	17	21.59	20	23.82	24	12.10	17	12.84
July	25	18.94	31	32.25	27	31.55	25	32.79
August	27	29.63	23	16.77	27	25.08	24	15.91
September	22	16.07	17	26.44	19	15.23	21	11.73
October	9	11.45	10	5.64	7	2.24	12	8.28
November	Nil	Nil	1	0.83	Nil	0.08	3	3.00
December	1	0.13	Nil	Nil	1	0.13	Nil	Nil
Total	136	110.67	147	124.92	136	97.17	144	102.91

	1949		1950		Total for 10 (ten) years	
	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall	No. of Rainy days	Monthly Rainfall
January	1	0.34	Nil	0.19	9	3.34
February	4	1.77	3	1.06	26	10.94
March	2	0.38	7	3.61	59	27.69
April	18	10.26	4	3.86	115	60.36
May	18	6.53	13	7.08	153	72.71
June	23	26.88	22	55.19	202	224.09
July	25	33.28	26	36.60	256	293.34
August	29	27.82	29	32.43	251	236.26
September	20	17.11	15	6.97	181	149.78
October	6	3.45	5	2.78	69	45.56
November	Nil	0.01	Nil	0.02	8	5.42(c)
December	1	0.36	Nil	Nil	5	0.90
Total	147	128.19	124	149.79	1,324	1,130.39(c)

(a) Data not available.

(c) Incomplete.

Source :—Directorate of Agriculture, West Bengal.

3.12—MEAN MAXIMUM AND HIGHEST ; MEAN MINIMUM AND LOWEST TEMPERATURES IN HEADQUARTERS STATION (1948-50)

Months	1948					1949					1950				
	Mean		Mean		Lowest	Mean		Mean		Lowest	Mean		Mean		Lowest
	Maximum	Highest	Minimum	Maximum		Highest	Minimum	Maximum	Minimum		Maximum	Minimum	Highest	Minimum	
January	61	64	50	48	60	64	49	42	65	72	51	42		
February	60	67	50	41	69	78	50	40		
March	69	79	59	55	75	87	59	56		
April	72	77	63	56	70	73	59	54	72	78	61	50		
May	76	85	65	61	73	79	64	60	74	79	64	60		
June	78	81	70	66	77	81	69	65	75	80	66	55		
July	77	82	68	61	77	80	70	65	78	82	69	69		
August	78	82	71	68	77	80	69	64	77	82	68	64		
September	77	80	68	64	77	80	68	60	77	81	68	65		
October	73	78	63	55	78	92	68	61	77	79	65	60		
November	69	88	57	54	67	78	57	53	70	79	56	52		
December	60	63	50	46	59	67	49	43	65	66	52	45		

Source :—Director, Regional Meteorological Centre, Calcutta.

TABLE 3.13—FREQUENCY OF FLOODS AND DROUGHTS—1891-1950

Method of Computation

The period considered is from 1891 to 1950, *i.e.*, 60 years. For each year the total rainfall during the season "May to October" (average rainfall recorded at all the stations in the district) was computed. From the 60 values of seasonal rainfall the "normal rainfall" was calculated. Now the rainfall in any particular year (*i.e.*, during May to October) will deviate from the "normal rainfall". These deviations were computed for each year. From the 60 deviations the "mean deviation" (disregarding sign) was calculated.

Definition of "Flood" and "Drought"

If the *actual* rainfall during May to October in the district was in *excess* of the "normal rainfall" by $1\frac{1}{2}$ times the "mean deviation" or more, that year is called a "Flood" year. Or the other hand if the actual rainfall was in *deficit* by $1\frac{1}{2}$ times the "mean deviation" or more that year is called a "Drought" year. If the actual rainfall lies between (a) normal rainfall plus $1\frac{1}{2}$ times the mean deviation and (b) normal rainfall minus $1\frac{1}{2}$ times the mean deviation the year is reckoned as a normal year.

Frequency of "Floods" and "Droughts" in Darjeeling

The following statement indicates the incidence of "Floods" and "Droughts" in each year in the district during the period 1891 to 1950. In any year in which the rainfall of the district has been more or less normal (neither Flood nor Drought) the space will be a blank.

1891—D	1901—D	1911	1921	1931	1941—D
1892—F	1902—F	1912	1922	1932	1942
1893—F	1903	1913	1923	1933	1943
1894—F	1904	1914	1924	1934	1944
1895	1905	1915	1925	1935	1945
1896	1906	1916	1926	1936	1946
1897	1907—D	1917—F	1927	1937	1947
1898—F	1908—D	1918	1928	1938—F	1948
1899—F	1909	1919	1929	1939	1949—F
1900	1910	1920	1930—D	1940—D	1950—F

F—for Flood
D—for Drought

Normal rainfall—115·2"

Mean deviation—11·5

Limit for Abnormality—17·2 (*i.e.*, $1\frac{1}{2}$ D)

Number of Floods in 60 years—10

Number of Droughts in 60 years—7

Total number of Abnormalities—17 (*i.e.*, Floods and Droughts)

Source :—Director of Meteorology, Poona.

**TABLE 3.14—PRODUCTION OF FOOD-GRAINS DURING THREE DECADES
(IN THOUSAND MAUNDS)**

Year	Cereals													Pulses			Total food-grains ('000 mds.)	Total food-grains ('000 tons.)		
	Rice			Other cereals										Other Pulses		Total pulses ('000 mds.)				
	Autumn	Winter	Summer	Total ('000 mds.)	Wheat	Barley	Jowar	Bajra	Ragi	Maize	Kharif	Rabi	Total cereals ('000 mds.)							
														Gram	Bhadoi				Rabi	
1920-21	..	35.7	296.7	9.3	341.7	18.7	8.6	..	..	21.6	487.0	4.9	3.5	886.0	..	11.2	14.0	25.2	911.2	33.5
1930-31	..	28.5	320.9	8.4	357.8	27.4	8.6	..	..	22.6	492.0	0.6	7.0	916.0	..	2.8	11.2	14.0	930.0	34.2
1940-41	1,009.9	32.6	8.6	..	..	22.6	452.6	0.5	5.8	1,532.6	..	2.6	11.2	13.8	1,546.4	56.8

Source :—Directorate of Agriculture, West Bengal.

INDUSTRY

***TABLE 4.1—SMALL SCALE INDUSTRIES**

*The Census of small scale industries was not taken in the district of Darjeeling.

TABLE 4.2—GROWTH OF FACTORIES—1940-1949

Year	Seasonal				Perennial				Total
	Food, Drink and Tobacco	Gins and Presses	Govt. and Local Fund Factories	Engineering	Food, Drink and Tobacco	Chemicals Dyos, etc.	Processes relating to Wood, Stone and Glass	Gins and Presses	
1	2	3	4	5	6	7	8	9	10
1940	126	1	4	2	7	..	1	..	141
1941	126	1	4	2	6	..	1	..	140
1942	126	1	4	2	6	..	4	..	143
1943	126	1	4	2	7	..	5	..	145
1944	126	1	4	2	7	..	6	..	146
1945	125	..	4	3	7	..	5	..	144
1946	125	1	4	3	6	..	5	..	144
1947	126	1	3	3	5	1	5	..	144
1948	126	1	4	3	7	..	5	..	146
1949 . . . .	..	..	6	6	131	..	5	1	149

Source : State Statistical Bureau, West Bengal.

TABLE 4.3—FACTORIES CLASSIFIED BY INDUSTRY WITH AVERAGE DAILY NUMBER OF WORKERS IN EACH 1949

Industry	Factories	Average daily number of workers employed	Industry	Factories	Average daily number of workers employed
1	2	3	1	2	3
I—Government and Local Fund Factories			Engineering		
Electrical Engineering	1	34	Coach building and motor car repairing	3	32
Engineering (General)	1	21	Electrical generating and transforming stations	2	40
Printing presses	1	25	General Engineering	1	29
Railway workshops	1	295			
Saw Mills	1	135			
Miscellaneous	1	157			
Total	6	667	Total	6	101
II—All Other Factories			Minerals and Metals		
Textiles . . . . .	..	..		..	..
Total . . . . .	..	..	Total . . . . .	..	..

**TABLE 4.3—FACTORIES CLASSIFIED BY INDUSTRY WITH AVERAGE
DAILY NUMBER OF WORKERS—concl'd.
1949**

Industry	Factories	Average daily number of workers employed	Industry	Factories	Average daily number of workers employed
1	2	3	1	2	3
<i>Food, Drink and Tobacco</i>			<i>Gins and Presses</i>		
Dairy produce	1	11	Jute presses	1	35
Rice Mills	6	225	Total	1	35
Tea	124	6,613			
Total	131	6,849			
<i>Chemicals and Dyes, etc.</i> . . . .	..	..	<i>Miscellaneous</i> . . . . .	..	..
Total . . . . .	..	..	Total . . . . .	..	..
<i>Paper and Printing</i> . . . . .	..	..	Total (All Other Factories)	143	7,244
Total . . . . .	..	..	
<i>Process relating to Wood, Stone and Glass</i>			GRAND TOTAL—		
Carpentry and cabinet making	2	49	1949	149	7,911
Saw Mills	1	27	1948	146	7,757
Miscellaneous	2	183	1947	144	7,499
Total	5	259	1946	144	7,362
<i>Processes connected with Skins and Hides</i> . . . . .	..	..	1945	144	7,189
Total . . . . .	..	..	1944	146	6,898
			1943	145	7,033
			1942	143	6,735
			1941	140	6,587
			1940	141	6,093

Note : - Above Statistics relate to Factories subject to Factories Act (XXV of 1943).

Source :— Office of the Chief Inspector of Factories.

**TABLE 4.4—AVERAGE DAILY NUMBER OF WORKERS EMPLOYED IN
DIFFERENT INDUSTRIES—1940-49**

Year	Seasonal			Perennial					Total
	Food, Drink and Tobacco	Gins and Presses	Govt. and Local Fund Factories	Engi- neering	Food, Drink and Tobacco	Chemicals, Dyes, etc.	Wood, Stone and Glass	Gins and Presses	
1	2	3	4	5	6	7	8	9	10
1940	5,158	50	256	370	287	..	35	..	6,156
1941	5,633	48	298	296	254	..	58	..	6,587
1942	5,613	46	318	296	273	..	189	..	6,735
1943	5,850	38	340	316	249	..	240	..	7,033
1944	5,542	38	367	389	283	..	279	..	6,898
1945	5,783	..	410	427	312	..	257	..	7,189
1946	5,978	20	401	421	311	..	231	..	7,362
1947	6,239	41	344	356	144	57	318	..	7,499
1948	6,402	42	646	73	245	..	349	..	7,757
1949 . . . . .	..	..	667	101	6,849	..	259	35	7,911

Figures for 1949 were compiled from the unpublished records of the Office of the Chief Inspector of Factories.

Note :—Workers employed by Factories subject to Factories Act are only shown.

Source :—State Statistical Bureau, West Bengal.

*** TABLE 4.5—AVERAGE DAILY NUMBER OF WORKERS EMPLOYED
IN JUTE MILLS BY CLASS**

* As there is no Jute Mill at Darjeeling this table is not furnished for this District.

*** TABLE 4.6—AVERAGE DAILY NUMBER OF WORKERS EMPLOYED IN
COTTON SPINNING AND WEAVING MILLS BY CLASS**

* As there is no Cotton spinning and weaving mill at Darjeeling this table is not furnished for this District.

TABLE 4.7—PUBLIC ELECTRIC SUPPLY UNDERTAKINGS

THE DARJEELING ELECTRIC SUPPLY

A—DARJEELING UNDERTAKING—1941-50

Particulars	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1 Installed capacity of generating plants—KW	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	
2 Capacity of each generating plant	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	5 × 200 2 × 480 1 × 200	......
3 Installed capacity of transforming plant—KW	..	..	..	..	..	..	..	..	..	..
4 Capacity of each transforming plant	..	..	..	..	..	..	..	..	..	..
5 Total energy generated—KWH	1,979,000	2,335,000	2,865,000	..	6,180,000	6,025,000	5,562,000	5,663,000	6,037,000	3,684,884
6 Total energy sold—KWH	1,662,000	1,855,000	2,300,000	..	4,918,000	4,964,000	4,800,000	4,722,000	5,135,000	3,160,014
7 Maximum demand—KW	883	782	911	..	1,687	1,706	1,671	1,608	1,693	1,440
8 Number of substations in converting stations	..	..	..	..	..	..	..	..	..	..
9 Number of miles of high tension cable or overhead line (approx.)	..	..	..	..	..	..	..	..	..	..
10 Number of miles of low tension cable or overhead line (miles)	..	..	..	..	..	..	..	..	..	..
11 Number of superior technical staff (officers)	..	..	..	..	..	..	..	..	..	..
12 Number of supervisory technical staff	..	..	..	..	..	..	..	..	..	..
13 Number of workers at generating plants	..	..	..	..	..	..	..	..	..	..
14 Number of workers at substation or transforming station	..	..	..	..	..	..	..	..	..	..
15 Number of domestic consumers	..	..	..	..	..	..	..	2,975	2,296	2,328
16 Number of industrial consumers	..	..	..	..	..	..	..	..	..	..
17 Energy consumed by domestic lights and fans	..	..	..	..	536,000	514,000	487,000	465,000	519,000	441,188
18 Energy consumed by domestic heat and small power	..	..	..	..	799,000	764,000	894,000	980,000	1,075,000	1,241,877
19 Energy consumed by commercial lights and fans	..	..	..	..	276,000	264,000	268,000	278,000	267,000	227,416
20 Energy consumed by commercial heat and small power	..	..	..	..	2,015,000	1,852,000	2,087,000	1,723,000	949,000	577,602
21 Energy consumed by Industrial power at low and medium voltage	..	..	..	..	820,000	875,000	449,000	928,000	923,000	280,738
22 Energy consumed by Industrial power at high voltage	..	..	..	..	..	..	..	..	..	..
23 Energy consumed in Public lighting	..	..	..	..	116,000	245,000	245,000	239,000	268,000	248,587

TABLE 4.7—PUBLIC ELECTRIC SUPPLY UNDERTAKINGS—contd.

**THE DARJEELING ELECTRIC SUPPLY
A—DARJEELING UNDERTAKING—1941-50**

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
24 Energy consumed in public water works and sewage pumping	134,000	88,000	173,000	109,000	134,000	142,806
25 Energy supplied in bulk to distributing licensees
26 Energy used for auxiliaries in power station
27 Net capital expenditure (Rs.)
28 Gross Revenue (Rs.)
29 Gross Expenditure (Rs.)
30 Gross Profit (Rs.)

THE KALIMPONG ELECTRIC SUPPLY CO., LTD.

B—KALIMPONG UNDERTAKING—1941-50

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1 Installed capacity of generating plants—KW	80	80	220	220	220	220	220	220	220	220
2 Capacity of each generating plant	2—40 each	2—40 each	1—140 2—40	Nil	Nil	Nil	Nil	Nil	Nil	Nil
3 Installed capacity of transforming plant—KW	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
4 Capacity of each transforming plant	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
5 Total energy generated—KWH	114,025	105,295	97,213	103,721	122,469	149,857	186,281	213,155	236,550	203,555
6 Total energy sold—KWH	96,261	91,308	83,788	89,694	109,009	126,745	154,050	185,982	194,827	188,147
7 Maximum demand—KW	50	60	75	75	80	92	103	110	128	140
8 Number of substations in commissioning stations	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
9 Number of miles of high tension cable or overhead line (approx.)	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil
10 Number of miles of low tension cable or overhead line (miles)	6	6	6	6	7	7	7	8	8	8
11 Number of superior technical staff (officers)	1	1	1	1	1	1	1	1	1	1
12 Number of supervisory technical staff	1	1	1	1	1	1	1	1	1	1
13 Number of workers at generating plants	8	8	8	8	8	7	7	7	7	7
14 Number of workers at substation or transforming station	..	..	..	..	..	..	..	..	..	..
15 Number of domestic consumers	246	265	265	269	273	341	391	425	452	479
16 Number of industrial consumers	..	2	2	4	5	7	10	10	10	10
17 Energy consumed by domestic lights and fans	43,842	44,956	51,498	60,620	93,726	85,408	109,824	125,734	136,017	125,184

TABLE 4.7—PUBLIC ELECTRIC SUPPLY UNDERTAKINGS—contd..

THE KALIMPONG ELECTRIC SUPPLY CO., LTD.

B—KALIMPONG UNDERTAKING—1941-50

Particulars	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
18 Energy consumed by domestic heat and small power	7,972	7,843	7,685	5,591	7,364	7,087	10,793	16,118	18,625	11,802
19 Energy consumed by commercial lights and fans	16,518	14,687	7,253	6,231	6,013	5,939	969	803	1,014	1,112
20 Energy consumed by commercial heat and small power	8,918	7,629	4,212	5,645	6,139	6,364	6,774	5,986	7,134	5,863
21 Energy consumed by Industrial power at low and medium voltage	8,354	5,758	4,598	4,125	6,828	7,729	10,286	19,901	8,412	4,632
22 Energy consumed by Industrial power at high voltage	..	..	..	..	..	..	..	..	..	..
23 Energy consumed in Public lighting	10,657	10,435	8,542	7,482	8,939	14,218	15,404	17,440	23,625	19,554
24 Energy consumed in public water-works and sewage pumping	..	..	..	..	..	..	..	..	..	..
25 Energy supplied in bulk to distributing licensees	..	..	..	..	..	..	..	..	..	..
26 Energy used for auxiliaries in power station	4,647	4,140	3,547	3,473	3,232	6,493	7,483	8,262	7,253	5,038
27 Net capital expenditure (Rs.)	8,141	10,175	56,870	1,790	504	3,359	16,137	10,883	10,270	7,165
28 Gross Revenue (Rs.)	28,916	36,326	33,921	37,097	47,844	57,648	72,356	75,103	88,022	89,240
29 Gross Expenditure (Rs.)	28,649	31,820	29,672	34,491	41,376	52,830	60,060	68,414	83,266	86,213
30 Gross Profit (Rs.)	267	4,506	3,949	2,606	6,468	4,818	12,296	6,689	4,756	3,027

THE KURSEONG HYDRO-ELECTRIC SUPPLY CO., LTD.

C—KURSEONG UNDERTAKING—1941-50

Particulars	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1 Installed capacity of generating plant—KW	400	400	400	400	400	400	400	400	800	800
2 Capacity of each generating plant	1-200 2-200	1-200 2-200	1-200 2-200	1-200 2-200	1-200 2-200	1-200 2-200	1-200 2-200	1-200 2-200	1-200 2-200 3-400	1-200 2-200 3-400 850
3 Installed capacity of transforming plant—KVA	330	330	330	330	330	465	565	665	825	850
4 Capacity of each transforming plant—KVA	1-5 2-25 1-50 1-125	1-5 4-25 2-50 1-125	1-5 4-25 2-50 1-125	1-5 4-25 2-50 1-125	1-5 4-25 2-50 1-125	1-5 4-25 3-50 1-10 1-125	1-5 5-25 3-50 2-75 1-10 1-125	1-5 5-25 3-50 2-75 1-10 1-125	1-5 5-25 4-50 2-75 2-10 1-125	1-5 6-25 4-50 2-75 2-10 1-125
5 Total energy generated—KWH	197,615	218,765	223,815	252,250	389,745	423,465	505,495	654,770	879,800	987,000
6 Total energy sold—KWH	149,099	162,963	169,985	197,619	303,695	322,765	365,578	454,443	612,923	683,300
7 Maximum demand—KW—(During Dewali) (Otherwise)	200 80	185 90	115 90	145 95	195 130	215 160	215 175	240 210	260 300	250 380

TABLE 4.7—PUBLIC ELECTRIC SUPPLY UNDERTAKINGS—*concl.*

THE KURSEONG HYDRO-ELECTRIC SUPPLY CO., LTD.

C—KURSEONG UNDERTAKING—1941-50

Particulars	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
8 Number of substations in converting stations	..	..	..	..	..	..	..	..	..	..
9 Number of miles of high tension cable or overhead line (approx.) (overhead line only)	4	4	4	4	4	12	14	20	22	24
10 Number of miles of low tension cable or overhead line (miles) (overhead line only)	24	24	24	24	24	24	24	24	24	25
11 Number of superior technical staff (officers)	1	1	1	1	1	1	2	1	1	2
12 Number of supervisory technical staff	2	2	2	2	2	2	2	2	2	2
13 Number of workers at generating plants or transforming station	9	9	9	9	9	9	13	10	10	10
14 Number of workers at sub-station or transforming station	11	9	9	10	11	12	22	21	24	23
15 Number of domestic consumers	446	583	612	618	621	633	692	752	784	810
16 Number of industrial consumers	1	1	1	2	3	5	7	8	9	9
17 Energy consumed by domestic lights and fans	31,699	37,655	48,084	51,789	60,426	65,772	74,267	95,086	126,421	152,262
18 Energy consumed by domestic heat and small power	12,380	13,512	31,875	31,341	76,960	81,070	91,584	134,067	180,883	218,416
19 Energy consumed by commercial lights and fans	28,780	33,909	35,258	39,520	44,039	53,864	55,136	48,354	54,540	59,015
20 Energy consumed by commercial heat and small power	5,624	8,658	9,008	8,991	32,334	26,937	18,712	19,793	25,195	28,716
21 Energy consumed by Industrial power at low and medium voltage	6,557	6,738	11,963	39,240	42,252	43,264	69,567	88,558	157,486	156,493
22 Energy consumed by Industrial power at high voltage	..	..	..	..	..	..	..	..	..	..
23 Energy consumed in Public lighting	64,059	62,791	33,797	26,738	47,684	51,858	56,312	68,585	68,398	68,398
24 Energy consumed in Public water-works and sewage pumping	..	..	..	..	..	..	..	..	..	..
25 Energy supplied in bulk to distributing licensees	..	..	..	..	..	..	..	..	..	..
26 Energy used for auxiliaries in power station	8,339	6,289	3,647	5,145	9,322	5,778	9,192	15,509	11,310	15,095
27 Net capital expenditure (Rs.)	3,12,542	3,27,758	3,40,710	3,44,371	3,54,606	4,14,899	5,13,758	6,26,145	6,83,657	8,38,562
28 Gross Revenue (Rs.)	35,783	42,320	50,638	53,069	66,950	89,874	1,00,206	1,24,925	1,30,987	1,19,682
29 Gross expenditure (Rs.)	24,290	24,895	26,158	35,377	43,888	42,346	51,215	64,238	60,720	83,741
30 Gross Profit (Rs.)	11,493	17,425	24,480	17,692	23,062	47,528	48,991	60,687	70,267	35,941

Source :—Electricity Development, Government of West Bengal.

ADMINISTRATION

TABLE 5.1—LAND REVENUE—1941-50

Particulars	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51
1	2	3	4	5	6	7	8	9	10	11
Permanently Settled Estates										
Current—										
Number .	4	4	4	4	4	4	4	4	4	4
Demand .	316	316	316	316	316	316	316	316	316	316
Collection .	316	316	316	127	316	316	316	316	316	190
Temporarily Settled Estates										
Current—										
Number .	176	178	181	184	184	179	179	180	180	180
Demand .	107,233	107,471	108,065	108,214	108,243	108,199	108,199	110,015	110,910	114,251
Collection .	106,410	105,571	105,432	106,076	106,195	106,522	104,875	108,008	108,616	108,836
Estates held directly by Government										
Current—										
Number .	13	13	14	14	14	17	17	17	17	17
Demand .	293,120	298,139	300,879	308,104	324,601	353,496	366,142	331,570	377,465	380,835
Collection .	247,345	265,641	276,372	291,071	310,866	322,582	340,139	332,160	332,070	330,345
Road and Public Works Cess										
Current—										
Number .	403	403	403	403	403	399	399	399	399	399
Demand .	59,985	59,985	59,985	59,985	59,985	59,800	59,800	59,800	59,800	60,164
Collection .	59,181	58,854	58,791	58,554	58,800	57,409	59,209	58,190	57,373	56,280

Source :—Finance Department, West Bengal.

TABLE 5.2—CRIMINAL JUSTICE—NUMBER OF CRIMINAL CASES TRIED

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
A—SERIOUS CRIMES										
I—Cognizable Cases										
(a) Offences against State, public tranquillity, safety and justice	6	9	6	6	10	25	36	25	21	24
(b) Serious offences against the person	79	102	70	83	101	137	114	117	135	152
(c) Serious offences against the person and property or against property only	250	193	43	216	175	245	267	285	251	282
II—Non-Cognizable Cases										
(a) Offences against State, public tranquillity, safety and justice	40	63	38	32	32	40	32	52	52	71
(b) Serious offences against the person	..	..	..	..	..	1	..	2	1	1
(c) Serious offences against the person and property or against property only	1	2	1	..	1	1	..	3	..	..
Total of I & II	376	369	158	337	319	449	449	484	460	530
B—MINOR CRIMES										
I—Cognizable Cases										
(a) Minor offences against the person	15	10	11	17	29	33	27	28	43	58
(b) Minor offences against property	594	659	430	620	559	612	758	743	820	1,069
(c) Other offences not specified above	819	832	970	824	1,134	521	832	995	1,492	1,776
II—Non-Cognizable Cases										
(a) Minor offences against the person	133	121	91	106	110	75	112	114	95	168
(b) Minor offences against property	36	38	43	34	34	13	33	31	13	61
(c) Minor offences not specified above	1,381	1,225	1,167	850	1,051	1,032	1,553	2,106	2,381	2,791
Total of I & II	2,978	2,885	2,712	2,451	2,917	2,286	3,315	4,017	4,844	5,923

Source :—Deputy Commissioner, Darjeeling.

TABLE 5.3—CRIMINAL JUSTICE

Offence or Nature of Proceedings 1	Persons convicted or bound over in									
	1941 2	1942 3	1943 4	1944 5	1945 6	1946 7	1947 8	1948 9	1949 10	1950 11
<i>All Offences</i>										
Offences against public tranquillity	9	20	4	5	3	39	36	35	122	35
Murder . . . . .	..	..	3	2	..	1	4	1	6	..
Culpable homicide . . . . .	..	4	2	1	5	1	..	3	..	7
Rape . . . . .	..	..	5	1	1	..	2	..	..	1
Hurt with aggravating circumstances	16	13	21	4	13	11	17	17	8	15
Hurt with criminal force or assault	2	..	2	1	2	1	2	1	2	2
Dacoity . . . . .	..	..	..	..	..	4	..	..	1	..
Robbery . . . . .	..	..	4	3	1	1	5	6	4	3
Theft	248	243	333	257	186	216	244	241	290	334
Other offences against the Indian Penal Code	125	115	112	115	85	103	106	131	99	144
Bad livelihood	7	3	4	..	..	..	1	3	..	2
Keeping the Peace . . . . .	..	..	..	..	..	..	..	..	..	..
Salt Law . . . . .	..	..	..	..	..	..	..	..	..	..
Excise Law	16	10	6	13	17	8	8	18	21	9
Stamp Law . . . . .	..	..	..	..	..	..	..	..	..	..
Municipal Law	109	137	126	117	112	39	52	38	36	45
Other offences	1,000	767	615	759	1,015	908	1,130	1,458	918	968

Source :—Superintendent of Police, Darjeeling.

TABLE 5.4—CIVIL JUSTICE

	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
I—Money Suits	326	227	235	199	220	174	235	350	355	344
II—Rent Suits* . . . . .	..	..	..	..	..	..	..	..	..	..
Total	326	227	235	199	220	174	235	350	355	344
(a) For enhancement of rent . . . . .	..	..	..	..	..	..	..	..	..	..
III—Title and other suits	73	70	101	90	91	79	109	120	254	145

*B. T. Act is not in operation in Darjeeling district.

Source :—District Judge, Jalpaiguri.

TABLE 5.5—STRENGTH OF POLICE IN 1950

Thana	Description of the staff										Total	No. of Unions	No. of Chauki-dars	No. of Data-dars
	S.P.	A.S.P.	D.S.P.	Insp.	S.I.	Sgt.	A.S.I.	H.C.	N.K.	Const.				
1 Darjeeling	1	..	1	2	7	..	6	14	..	149	180	..	..	..
2 Rangli Rangliot.	1	..	1	..	..	8	10	..	..	..
3 Pulbazar	1	..	1	2	..	17	21	..	..	..
4 Jore Bungalow	2	..	2	1	..	14	19	..	..	..
5 Sukiapokri	1	..	1	2	..	16	20	..	..	..
6 Kalimpong	1	6	..	6	7	..	70	88	..	..	..
7 Garubathan	1	..	1	1	..	12	15	..	..	..
8 Kurseong	1	4	..	4	3	..	52	64	..	..	..
9 Mirik	1	..	1	..	..	8	10	..	..	..
10 Siliguri	1	5	..	5	6	..	69	86	8	45	7
11 Phansidewa	1	..	2	..	..	14	17	7	35	7
12 Kharibari	1	..	1	2	..	16	20	9	57	9
Court	1	9	..	9	..	..	26	45	..	..	..
Reserve	2	..	1	..	..	..	3	..	..	..
Miscellaneous	8	..	..	..	..	141	149	..	..	..
D. I. B.	1	7	1	5	..	..	42	56	..	..	..
Special Armed Forces.	1	1	1	..	14	13	188	218	..	..	..
Total	1	..	1	8	57	2	45	52	13	842	1,021	24	137	23

Source :—Inspector General of Police, West Bengal.

TABLE—5.6 JAILS

Name and Class of Jail	Accommodation in 1950			Daily average number of prisoners in									
	Total	Males	Fe-males	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 Darjeeling District Jail	127	117	10	77.39	107.48	127.60	117.04	114.51	141.68	132.52	114.59	133.52	124.46
2 Kurseong Sub-Jail	24	22	2	3.55	5.38	3.83	1.95	1.22	4.30	11.42	6.94	7.68	5.42
3 Kalimpong Sub-Jail	6	4	2	5.96	6.25	5.82	4.67	4.11	10.20	9.88	13.86	7.49	6.53
4 Siliguri Sub-Jail	11	9	2	12.37	10.93	13.65	15.07	14.41	15.96	24.40	27.87	58.09	66.58

Source :—Prisons Directorate, West Bengal.

TABLE 5.7—NUMBER AND DESCRIPTION OF REGISTERED DOCUMENTS AND VALUE OF PROPERTIES TRANSFERRED IN 1949

Number of registration offices	Number of Registration						Aggregate value of property transferred by registered documents			Total amount of ordinary fees	Total of other receipts	Total receipts	Total expenditure
	Immovable Property			Movable Property	Wills	Total	Affecting immovable property	Affecting movable property	Total				
	Compulsory	Optional	Total										
6	2,545	6	2,551	219	14	2,784	3,368,119	208,158	3,576,277	21,501	3,436	24,937	14,010

Source :—Annual Report on the working of the Registration Department.

TABLE 5.8—CO-OPERATIVE SOCIETIES IN 1949-50

Description	No. of Societies at the end of the year	No. of members	Working Capital (Rupees)				Total	Loans issued to members and other Societies
			Loans from private persons, other Societies and Banks	Share Capital paid up	Reserve and other funds			
1	2	3	4	5	6	7	8	
							Rs.	
Central Banks	3	204	210,600	53,280	226,151	490,031	190,898	
Agricultural Societies	235	5,746	195,095	25,940	197,141	418,176	188,120	
Non-Agricultural Societies	23	3,244	220,519	110,780	79,641	410,940	315,949	
Total	261	9,194	626,214	190,000	502,933	1,319,147	694,967	

Note—Figures for Agricultural Societies include credit and exclude credit grain. Figures for Non-Agricultural Societies include only credit.

Source :—Registrar of Co-operative Societies, West Bengal.

**TABLE 5.9—EXCISE RECEIPTS
(IN RUPEES)**

Serial No.	Excise Articles	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51
1	2	3	4	5	6	7	8	9	10	11	12
1	Imported liquors . . .	4,829	11,660	20,051	53,401	59,906	56,012	76,417	91,203	93,115	107,584
2	Country Spirits—										
	(a) Duty on Country Spirits	138,162	252,576	532,505	807,057	814,729	798,297	565,793	646,604	669,146	663,149
	(b) Distillery and license fees on Country Spirits	96,616	177,781	139,804	131,277	92,725	90,578	66,393	54,507	66,759	62,566
	(c) Receipts in outstill areas	..	..	..	..	..	..	..	..	..	..
3	Tari . . .	..	..	..	..	..	..	..	..	..	..
4	Pachwai . . .	37,641	36,015	24,884	22,241	27,155	26,469	24,170	25,311	25,864	24,336
5	Opium—										
	(a) Duty . . .	19,776	28,119	32,767	92,765	86,528	81,796	92,495	91,750	82,392	83,722
	(b) License fees . . .	6,657	9,752	8,162	11,281	11,947	9,815	10,325	7,983	5,436	5,606
6	Hemp Drugs—Total . . .	10,471	12,924	20,876	35,912	40,939	44,874	48,037	47,005	31,879	27,536
	Duty . . .	5,993	7,346	14,911	29,545	35,111	38,459	42,117	41,755	28,119	23,515
	License fees . . .	4,478	5,578	5,965	6,367	5,828	6,415	5,920	5,250	3,760	4,021
	(a) Ganja—										
	Duty . . .	5,951	7,297	14,837	29,385	34,761	38,025	41,641	40,965	26,539	22,155
	License fees . . .	4,362	5,462	5,809	6,184	5,639	6,147	5,671	4,931	3,072	3,524
	(b) Charas—										
	Duty . . .	..	..	..	..	..	..	..	..	..	..
	License fees . . .	..	..	..	..	..	..	..	..	..	..
	(c) Bhang—										
	Duty . . .	42	49	74	160	350	434	476	790	1,580	1,360
	License fees . . .	116	116	156	183	189	268	249	319	688	497
7	Miscellaneous including cocaine, methylated spirits, beer and medicated wines	2,963	2,001	1,003	1,433	21,921	14,609	10,392	9,341	26,778	20,037

Source :—Excise Directorate, West Bengal.

**TABLE 5.10—RECEIPTS OF SALES TAX
(IN RUPEES)**

1940-41	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	August 1947-48	1948-49	1949-50	1950-51
..	25,240	92,152	95,595	220,101	400,000	..	224,986	502,751	748,892	759,754

Source :—Commissioner of Commercial Taxes, West Bengal.

**TABLE 5.11—RECEIPTS OF ENTERTAINMENT TAX
(IN RUPEES)**

1940-41	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	August 1947-48	1948-49	1949-50	1950-51
13,524	15,563	48,861	202,503	250,061	407,000	..	43,785	67,635	..	..

Source :—Deputy Commissioner, Presidency Division.

**TABLE 5.12—RECEIPTS OF MOTOR SPIRIT TAX
(IN RUPEES)**

1940-41	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	August 1947-48	1948-49	1949-50	1950-51
..	3,724	10,213	10,773	26,349	74,000	..	145,635	236,197	413,265	589,975

Source :—Commissioner of Commercial Taxes, West Bengal.

**TABLE 5.13—STAMPS
(IN RUPEES)**

Class of Stamps	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51
1	2	3	4	5	6	7	8	9	10	11
	Ra.	Ra.	Ra.	Ra.	Ra.	Ra.	Ra.	Ra.	Ra.	Ra.
Judicial	58,221	..	..	51,578	107,757	97,718	85,284	92,980	116,154	92,171
Non-judicial	28,537	..	..	61,283	77,006	155,326	95,801	142,113	137,432	102,329

Source :—Finance (Taxation) Department.

TABLE 5.14—INCOME-TAX

Particulars	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51
1	2	3	4	5	6	7	8	9	10	11
Number of assesses	891	1,061	1,317	1,289	1,308	1,380	1,437	1,353	2,148	1,519
Net Collection Ra. (in thousands)	3.88	6.05	8.80	9.52	9.02	7.15	5.66	11.42	10.49	11.38

Source :—Commissioner of Income-tax, West Bengal.

EDUCATION AND ENTERTAINMENT

TABLE 6.1—PUBLIC INSTITUTIONS AND PUPILS IN 1950-51

Class of Institutions	Total		Under the management of Government or Local Bodies				Under private management			
			Managed by Government		Managed by Municipalities and District School Board		Aided by Government and District or Municipal Board		Unaided	
	No. of Institutions	No. of Pupils	No. of Institutions	No. of Pupils	No. of Institutions	No. of Pupils	No. of Institutions	No. of Pupils	No. of Institutions	No. of Pupils
	2	3	4	5	6	7	8	9	10	11
Colleges	5	484	1	194	..	..	1	98	3	192
H. E. Schools	16	6,815	2	543	..	..	11	5,357	3	915
M. E. Schools	30	6,419	..	..	1	492	27	5,796	2	131
Primary Schools	333	20,179	10	1,287	6	843	307	17,799	10	250
Technical Schools	4	1,168	1	22	..	..	3	1,146	..	..
Training Schools	3	82	1	40	..	..	1	22	1	20
Other Schools	25	1,847	11	660	..	..	5	232	9	482

Source :—Education Directorate, West Bengal.

TABLE 6.2—EDUCATION (NUMBER OF INSTITUTIONS AND PUPILS)—1941-50

Class and number of Institutions with number of pupils	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51
1	2	3	4	5	6	7	8	9	10	11
GRAND TOTAL										
Institutions	368	361	357	366	405	365	367	392	403	416
Pupils	16,821	16,531	17,498	19,244	20,758	23,725	25,604	28,185	34,217	36,521
Public Institutions										
Institutions . . . . .	..	..	..	..	..	..	..	..	..	..
Pupils . . . . .	..	..	..	..	..	..	..	..	..	..
Colleges										
Institutions	2	2	2	2	2	2	3	4	5	5
Pupils	51	78	90	77	66	102	167	227	428	484
H. E. Schools										
Institutions	9	9	10	10	11	11	11	14	15	16
Pupils	2,913	2,928	3,388	3,607	4,373	4,822	5,233	5,960	6,371	6,815
M. E. Schools										
Institutions	15	15	16	17	18	19	23	27	26	30
Pupils	1,752	1,932	2,199	2,801	3,040	3,622	4,717	5,503	5,151	6,419
Primary Schools										
Institutions	332	325	318	326	363	322	319	331	332	333
Pupils	11,449	11,051	11,333	12,086	12,591	14,278	14,462	15,440	19,092	20,179
Technical Schools										
Institutions	3	3	3	3	3	3	3	3	4	4
Pupils	429	337	240	403	404	602	679	437	2,190	1,168
Training Schools										
Institutions	3	3	3	3	3	3	3	3	2	3
Pupils	39	36	30	29	32	37	45	43	49	82
Other Schools										
Institutions	3	4	4	5	5	5	4	5	15	25
Pupils	158	169	186	241	252	262	268	238	498	1,374
Unrecognised Schools										
Institutions	1	Nil	1	Nil	Nil	Nil	1	5	5	Nil
Pupils	30	Nil	32	Nil	Nil	Nil	33	337	438	Nil
Percentage of male pupils to male population of school going age (5 to 14) of 1951	18	18	19	20	21	24	25	27	30	33
Percentage of female pupils to female population of school going age (5 to 14) of 1951	5	5	6	6	7	8	8	10	12	14

Source :—Education Directorate, West Bengal.

TABLE 6.3—DIRECTORY OF HIGH SCHOOLS

Note on compilation—The Census Department framed a questionnaire which the Director of Public Instruction addressed to all schools. The replies were tabulated and this table is based solely on the returns received from schools. No attempt has been made to check the returns with the records of the Education Directorate. The information furnished by each school is therefore without authoritative verification.

ABSTRACT FOR DARJEELING DISTRICT

Subdivision	No. of Schools	Total No. of classes including sections	Average No. of pupils for years 1946-50	Total No. of Teachers	No. of Graduate Teachers	No. of trained Graduates	Total Government grants received 1946-47 to 1950-51 (Rs.)	Total private donations received or raised 1948-49 to 1950-51 (Rs.)
1	2	3	4	5	6	7	8	9
ALL AREAS								
DISTRICT	16	206	5,734	268	95	41	772,065	242,643
Sadar	5	61	1,792	83	35	19	425,720	77,488
Kurseong	4	42	970	53	15	9	105,448	16,637
Kalimpong	2	47	1,652	61	15	6	69,924	80,067
Siliguri	5	56	1,320	71	30	7	170,973	68,451
RURAL AREAS								
DISTRICT	2	16	225	20	7	1	31,075	4,017
Sadar	..	..	..	..	..	..	..	..
Kurseong	..	..	..	..	..	..	..	..
Kalimpong	..	..	..	..	..	..	..	..
Siliguri	2	16	225	20	7	1	31,075	4,017
URBAN AREAS								
DISTRICT	14	190	5,509	248	88	40	740,990	238,626
Sadar	5	61	1,792	83	35	19	425,720	77,488
Kurseong	4	42	970	53	15	9	105,448	16,637
Kalimpong	2	47	1,652	61	15	6	69,924	80,067
Siliguri	3	40	1,095	51	23	6	139,898	64,434

Note—Column 8 excludes moneys spent on schools run wholly by the Government.

SUBDIVISION SADAR

Serial No.	J. L. No. Municipal Ward No.	Name of School	Date of origin	Date of affiliation to C. U.	Total No. of classes including sections	Average No. of pupils for years 1946-50	Total No. of Teachers	No. of Graduate Teachers	No. of trained Graduates	Total Government grants received 1946-47 to 1950-51	Total of private donations received or raised 1948-49 to 1950-51
1	2	3	4	5	6	7	8	9	10	11	12
P. S. DARJEELING											
1	Darjeeling Municipality	Nepali Girl's High School	1890	1-1-1942	17	498	22	4	2	23,354	68,854
2	Ditto	Maharani Girl's H. E. School.	1-9-1908	16-1-1940	11	286	15	6	2	53,430	7,992
3	Ditto	Darjeeling Govt. High School.	1860	1892	17	437	26	15	12	338,378	..
4	Ditto	Ramkrishna Sikha Parishad Boy's High School	1948	21-3-1949	6	200*	8	4	1	902	..
5	Ditto	St. Robert's High School	1-3-1934	16-4-1935	10	371	12	6	2	9,656	642
Total for Thana					61	1,792	83	35	19	425,720	77,488
Total for Urban areas					61	1,792	83	35	19	425,720	77,488
Total for Rural areas					..	..	..	..	..	..	..

* Average for 2 years 1949-50.

TABLE 6.3—DIRECTORY OF HIGH SCHOOLS—*contd.*

Serial No. 1	J. L. No. Municipal Ward No. 2	Name of School 3	Date of origin 4	Date of affiliation to C. U. 5	Total No. of classes including sections 6	Average No. of pupils for years 1946-50 7	Total No. of Teachers 8	No. of Graduate Teachers 9	No. of trained Graduates 10	Total Government grants received 1946-47 to 1950-51 11	Total of private donations received or raised 1948-49 to 1950-51 12
										Rs.	Rs.
P. S. JORE BUNGALOW											
		Total for Thana Total for Urban areas Total for Rural areas			Nil						
P. S. PULBAZAR											
		Total for Thana Total for Urban areas Total for Rural areas			Nil						
P. S. SUKHIPOKRI											
		Total for Thana Total for Urban areas Total for Rural areas			Nil						
P. S. RANGLI RANGLIOT											
		Total for Thana Total for Urban areas Total for Rural areas			Nil						
SUBDIVISION—KURSEONG											
P. S. KURSEONG											
1	Kurseong Municipality	Pusparani Ray Memorial H. E. School	July 1942	2-4-1943	7	218	12	4	2	10,648	169
2	Ditto	St. Joseph's Girls' H. E. School	1938	1944	10	158	11	4	2	20,207	12,280
3	Ditto	St. Alphonsus H. E. School	1-1-1936	1936	12	442	15	3	3	10,188	4,288
K. G. SENIOR CAMBRIDGE											
4	Ditto	St. Helen's Convent School	1890	May, 1890	13	152	15	4	2	64,405	..
		Total for Thana	4		42	970	53	15	9	1,05,448	16,637
		Total for Urban areas	4		42	970	53	15	9	1,05,448	16,637
		Total for Rural areas	..		..	..	..	..	..	..	..
P. S. MIRIK											
		Total for Thana Total for Urban areas Total for Rural areas			Nil						

TABLE 6.3—DIRECTORY OF HIGH SCHOOLS—concl'd.

1 Serial No.	2 J. L. No. Municipal Ward No.	3 Name of School	4 Date of origin	5 Date of affiliation to C. U.	6 Total No. of classes including sections	7 Average No. of pupils for years 1946-50	8 Total No. of Teachers	9 No. of Graduate Teachers	10 No. of trained Graduates	11 Total Government grants received 1946-47 to 1950-51	12 Total of private donations received or raised 1948-49 to 1950-51
SUBDIVISION—KALIMPONG										Rs.	Rs.
P. S. KALIMPONG											
1	Kalimpong Municipality	Scottish Universities Mission Institution	1887	1915	25	1,010	32	11	5	26,249	59,119
2	Ditto	Kalimpong Girls' High English School	1895	1924	22	642	29	4	1	43,675	20,948
Total for Thana		2	.	.	47	1,652	61	15	6	69,924	80,067
Total for Urban areas		2	.	.	47	1,652	61	15	6	69,924	80,067
Total for Rural areas		..	.	.	..	..	..	..	..	..	..
P. S. GARUBATHAN											
Total for Thana		}	Nil								
Total for Urban areas											
Total for Rural areas											
SUBDIVISION—SILIGURI											
P. S. SILIGURI											
1	Siliguri Municipality	Siliguri H. E. School	1918	1920	16	508	20	7	2	47,615	91
2	Ditto	Tarai Adarsa Bidyalaya	26-1-1949	1-1-1950	13	340	16	7	1	29,627	52,186
3	Ditto	Siliguri Girls' H. School	4-3-1947	1-1-1949	11	247*	15	9	3	62,656	12,157
Total for Thana		3	.	.	40	1,095	51	23	6	139,898	64,434
Total for Urban areas		3	.	.	40	1,095	51	23	6	139,898	64,434
Total for Rural areas		..	.	.	..	..	..	..	..	..	..
P. S. KHARIBARI											
1	J. L. 48, Khari bari	Kharibari H. E. School	Not known	19-11-1948	10	133	12	4	..	15,921	3,096
Total for Thana		1	.	.	10	133	12	4	..	15,921	3,096
Total for Urban areas		..	.	.	..	..	..	..	..	..	..
Total for Rural areas		1	.	.	10	133	12	4	..	15,921	3,096
P. S. PHANSIDEWA											
1	Mauza Nizam-tara	Phansidewa H. E. School	2-1-1945	January, 1946	6	92	8	3	1	15,154	921
Total for Thana		1	.	.	6	92	8	3	1	15,154	921
Total for Urban areas		..	.	.	..	..	..	..	..	..	..
Total for Rural areas		1	.	.	6	92	8	3	1	15,154	921

* Average for 3 years 1948-50.

Source—Director of Public Instruction, West Bengal and Individual School

**TABLE 6.4—PRINTING PRESSES AT WORK, NEWSPAPERS AND PERIODICALS
PUBLISHED IN 1950-51**

Number of Printing Presses at work	Number of Newspapers Published	Number of Periodicals Published
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16

5

6

Source :—Home (Press) Department.

TABLE 6.5—CINEMAS IN 1950*

Number of Cinema Houses (in December 1950)	Number of Spectators (Monthly average)
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4

48,189

*Provisional

Source :— District Office 6.

PUBLIC HEALTH

TABLE 7.1—NUMBER OF HOSPITALS AND DISPENSARIES IN 1949

State	Prov.	A.G.	F.R.E.	State Special	Local and Municipal Funds including U. B. and Village	Private Aided	Private Un-aided	Railways	Total	Health Centres
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2

4

..

..

8

5

4

4

4

31

1

Source :—Office of the Director of Health Services, West Bengal.

TABLE 7.2—RURAL HEALTH CENTRES IN 1950

Serial No.	Subdivision	Police Station	Union	Name of Health Centres.	No. of beds
1	Sadar	Rangli Rangliot	..	Takda Thana Health Centre	20

Source :—Directorate of Health Services, West Bengal.

TABLE 7.3—LIST OF HOSPITALS AND DISPENSARIES IN 1951

Serial No.	Subdivision, Police Station or Town	Union	Hospitals, Name of place and J. L. No.	Dispensaries, Name of place and J. L. No.	Beds		Maintained by	Medical Officer's qualifications
					General	Infectious		
1	2	3	4	5	6	7	8	9
SADAR SUBDIVISION								
1	Darjeeling	..	Victoria	..	106	..	Government	S.A.S.
2	Do.	..	Jail	..	8	4	Do.	S.A.S.
3	Do.	..	Clark T. B.	..	..	26	Municipality	M.B.
4	Do.	..	Infectious diseases	..	..	16	Do.	M.B.
5	Do.	..	Eden Sanitarium	..	10	..	Private	A.S.
6	Do.	..	Lewis Jubilee Sanitarium	..	8	..	Do.	L.M.F.
7	Do.	..	..	Police Lines	..	..	Government	S.A.S.
8	Do.	..	..	T. B. outdoor	..	..	Municipality	L.M.F.
9	Do.	..	..	D. H. Rly.	..	..	D. H. Rly.	L.M.F.
10	Rangli Rangliot	..	Mongpoo Cinchona plantation	..	14	..	Dir., Cinchona	S.A.S.
11	Jore Bungalow	..	..	Martin Charitable	..	..	Municipality	L.M.F.
KURSEONG SUBDIVISION								
12	Kurseong	..	Kurseong	..	41	4	Government	S.A.S.
13	Do.	..	..	Lot Pancha cinchona plantation	..	..	Dir., Cinchona	S.A.S.
14	Do.	..	S. B. Dey Sanitarium	..	..	15	Private	M.B.
15	Do.	..	..	Pakhbarihat	..	..	District Board	L.M.P.
16	Do.	..	..	Kurseong	..	..	D. H. Rly.	L.M.P.
17	Do.	..	Dow Hill Central	..	36	..	Government	C.M.O.
18	Do.	..	Tindharia Rly.	..	12	..	D. H. Rly.	L.M.F.
SILIGURI SUBDIVISION								
19	Siliguri	Siliguri	Siliguri	..	22	6	Government	S.A.S.
20	Do.	Do.	..	Itinerant	..	..	Do.	S.A.S.
21	Do.	Do.	..	Siliguri Railway	..	..	D. H. Rly.	L. M. F.
22	Kharibari	..	Naxalbari	..	11	..	Government	S.A.S.
KALIMPONG SUBDIVISION								
23	Garubathan	..	..	Kalijhora	..	..	W. B. Department	S.A.S.
24	Kalimpong	..	Chartari	..	260	..	Mission	S.A.S.
25	Do.	..	Steel Memorial	..	70	..	Do.	M.B.
26	Do.	..	..	Guild Tibetan Mission	..	..	Do.	M.B.
27	Do.	..	St Andrew's Col. Homes	..	70	..	Do.	M.B.
28	Do.	..	Munsong Cinchona Plantation	..	10	..	Dir., Cinchona	S.A.S.
29	Do.	..	Kalimpong Leprosy Colony	..	..	100	State	..
30	Do.	..	..	Tista Bridge	..	..	W. B. Department	S.A.S.

Source :—Directorate of Health Services, West Bengal.

LOCAL BODIES

TABLE 8.1—RECEIPTS AND EXPENDITURE OF DISTRICT BOARD—1941-50
(IN RUPEES)

Particulars	1941-42	1942-43	1943-44	1944-45	1945-46	1946-47	1947-48	1948-49	1949-50	1950-51
1	2	3	4	5	6	7	8	9	10	11
A RECEIPTS ALL SOURCES	248,878	240,164	241,581	321,666	287,997	323,727	349,487	405,368	330,146	451,330
(a) Land Revenue	1,026	1,062	1,127	1,246	925	986	843	764	1,718	1,279
(b) Local Rates	92,729	91,448	94,368	96,314	92,259	87,385	88,715	89,922	86,248	90,147
(c) Interest . . . . .	..	..	..	..	..	..	..	..	..	..
(d) Law and Justice . . . . .	..	..	33	60	15	..	..	..	..	..
(e) Police	5,577	3,979	4,606	4,331	4,541	4,123	2,989	3,146	3,015	3,781
(f) Education	22,646	22,646	22,646	35,894	44,514	44,150	89,738	76,458	83,074	107,099
(g) Medical	24,944	32,558	24,779	85,042	43,169	72,416	42,815	100,280	45,115	128,217
(h) Scientific and other minor Departments	1,617	1,195	1,054	1,095	892	903	894	1,099	893	855
(i) Pension Contribution . . . . .	..	..	..	..	..	..	..	..	..	..
(j) Stationery and Printing . . . . .	..	..	..	..	..	..	..	..	..	..
(k) Miscellaneous	50,104	50,021	50,435	53,500	60,584	60,035	64,443	63,547	61,796	65,436
(l) Railway . . . . .	..	..	..	..	..	..	..	..	..	..
(m) Irrigation and minor Works . . . . .	..	..	..	..	..	..	..	..	..	..
(n) Civil Works	50,235	37,256	42,533	44,184	41,098	53,729	59,050	70,152	48,287	54,516
B EXPENDITURE ALL SOURCES	261,146	246,761	251,806	282,679	284,370	336,341	386,224	380,246	364,603	384,598
(a) Refunds and Drawbacks . . . . .	..	..	..	..	..	..	..	..	..	..
(b) Administration	14,462	15,124	15,129	15,656	19,381	22,500	24,618	28,020	29,404	28,614
(c) Law and Justice . . . . .	..	..	..	..	..	54	3	103	..	..
(d) Police . . . . .	..	..	86	..	..	..	..	..	..	..
(e) Ports and Pilotage . . . . .	..	..	..	..	..	..	..	..	..	..
(f) Education	31,446	32,463	32,169	43,678	51,918	54,833	89,044	95,078	95,067	92,231
(g) Medical	67,410	76,970	90,017	90,143	98,908	107,188	129,542	128,499	125,281	127,590
(h) Scientific and other minor Departments	7,609	9,658	10,311	10,865	6,806	14,204	8,309	15,942	11,234	10,242
(i) Pension, etc.	3,336	3,478	3,235	3,021	3,692	3,179	4,048	4,629	3,596	3,388
(j) Stationery and Printing	588	362	792	323	1,253	617	757	968	538	1,125
(k) Miscellaneous	2,054	1,401	9,304	6,030	3,152	17,278	4,139	13,486	3,212	10,309
(l) Famine Relief . . . . .	..	..	..	..	..	..	..	..	..	..
(m) Railway . . . . .	..	..	..	..	..	..	..	..	..	..
(n) Minor Works and Navigation . . . . .	..	..	..	..	..	..	..	..	..	..
(o) Civil-Public Works	134,241	107,305	90,763	112,963	99,260	116,488	125,764	93,521	96,271	111,099

Source :—District Engineer, Darjeeling.

TABLE 8.2—RECEIPTS AND EXPENDITURE OF MUNICIPALITIES—1941-1950
(IN RUPEES)

Serial No.	Name of Municipality	1941-42		1942-43		1943-44		1944-45		1945-46	
		Receipts	Expenditure	Receipts	Expenditure	Receipts	Expenditure	Receipts	Expenditure	Receipts	Expenditure
1	2	3	4	5	6	7	8	9	10	11	12
1	Darjeeling	991,665	988,401	1,070,411	1,021,444	938,096	971,609	941,119	913,981	1,404,764	1,154,044
2	Kurseong	80,684	77,334	80,631	76,429	76,689	80,110	98,687	86,095	98,936	109,267
3	Kalimpong	..	..	..	..	..	..	..	..	33,588	21,295
4	Siliguri	..	..	..	..	..	..	..	..	..	..
Serial No.	Name of Municipality	1946-47		1947-48		1948-49		1949-50		1950-51	
		Receipts	Expenditure	Receipts	Expenditure	Receipts	Expenditure	Receipts	Expenditure	Receipts	Expenditure
1	Darjeeling	1,215,587	1,299,427	1,079,133	1,147,678	1,251,631	1,222,007	1,337,001	1,299,786	1,561,404	1,741,576
2	Kurseong	169,068	162,100	160,781	171,916	155,264	163,419	146,003	138,134	243,459	204,684
3	Kalimpong	104,095	83,896	136,603	92,403	104,870	107,445	130,188	103,606	143,676	150,025
4	Siliguri	..	..	..	..	..	..	..	..	79,725	64,048

Source :—Deputy Commissioner, Darjeeling.

COMMUNICATIONS

TABLE 9.1—VILLAGE ROADS

Serial No.	Name of Road	Serial No.	Name of Road
SADAR SUBDIVISION		63	Riyang-Gulzong Road
1	Ghum-Selimong Road	64	Malabans-Turzam Road
2	Bhanjang-Lepchajagat Road	65	Riyang Contour Path
3	Bhanjang-Najhora Road	66	29th Mile Road
4	Batas-Barbatia Road	67	Soreng Ridge Path
5	Bhanjang-Dharamsala Road	68	Ramjee Road
6	Najhora-Kuhlyhora Road	69	Balasan Road
7	Rongdhoru-Jorepool Road	70	Pulungdung Road
8	Lepchajagat 1. B. Road	71	Middle Pulungdung Road
9	Lepchajagat-Majhidhara Road	72	Pokriabong Road
10	Lepchajagat-Balasan Road	73	Dhojia Road
11	Dundungia Ridge Path Road	74	Duktin Road
12	Ghum Rock Road	75	Saloo Road
13	Majhidhara Gunasodara Road	76	Barbatia Road
14	Mim-Chomtong Road	77	Little Rangit Road
15	Bhanjang-Gumba Road	78	Dawaipani Manidara Road
16	Turnsong Coppice Path	79	Rangilee Road
17	Sukhia-Majhidhara Road	80	Lower Takdah Road
18	Sukhia-Manebhanjang Cart Road	81	Takdah Road
19	Sukhia-Gourbash Road	82	Nirmal Roy Chowdhury Road
20	Sukhia-Pulandong Road	83	Middle Pormaguri Road
21	Majhidhara-Balasan Path	84	Upper Pormaguri Road
22	Parmaguri Mim Road	85	Middle Dawaipani Road
23	Debrepam-Mirik Road	86	Maneybhanjang Road
24	Debrepam Bungalow Path	87	Tonglu Road 2
24(A)	Debrepam Inspection Bungalow Road	88	Karmi Road
25	Chomtong-Ryam Road	89	Kolbong-Lington Road
26	Jorepokti Balasan Road	90	Dharamdin Road
27	Bhasmi-Nagri Road	91	Sarunangoun Road
28	Phalaicha-Charchary Road	92	Tamphuwa Road
29	Turnsong-Rishihat Road	93	Palmazuwa Road
30	Bridle Path through Mim 3	94	Dilpa Road
31	Contour Path through Rishihat	95	Fedigoan Road
32	Lepchajagat-Poobong Road	96	Sandakphu Road
33	Path through Mim 1B	97	Lodhama Road
34	Path through Tashiding 2	98	Palmazuwa Road 2
35	Saloodhara Path	99	Sombaria Road
36	Branch of Phoktedara-Lodama on Rimbiokdara Road	100	Rinji Girmi Road
37	Phoktedara-Lodama Road	101	Lodhama-Dharamdin Road
38	Rimbiok Khasland-Rimbiok Bungalow and then to Rimbiok Sabarcam Main Road	102	Daragoan Road
39	Siri-Daragoan to Ramam	103	Srikhola Road
40	Siri-Ramam Road to Ramam Bungalow	104	Phatang Road
41	Ramam Bungalow to Sabarcam Road	105	Kom Road
42	Ramam-Sabarcam Path to Sample Plot No. 20	106	Tista Road
43	Ramam to Phulut Road	107	Chogra Road
44	Rimbiok-Tarabhir Road	108	Peshoke Road
45	Sample Plot No. 20 to Old Ramam Path	109	Upper Maungwa Road
46	Soom Bridle Path	110	Bara Maungwa Road
47	Rongdong-Garidara Road	111	Gielle Khola Road
48	Simkora-Rambi Road	112	Soreang Road
49	Rambi Mongpoo Road	113	Gumba Road
50	The Link Road (motorable)	114	Labdah Road
51	Lalkhuti-Chatakpur Road	115	Tonglu Road 1
52	Chatakpur-Mongpoo Road		
53	Manebhanjang-Batasidara Contour Path	KURSEONG SUBDIVISION	
54	Batasidara-Dhodray Road	1	Ratmatay Road
55	Dhodray-Palmajua Khola	2	Barpipal Road
56	Manibhanjang Contour Path short-cut to Batasi Bungalow	3	Marma Road
57	Batasi-Deorali Road	4	Lower Munring Road
58	Batasi Bungalow to Surjijhora	5	Toroyok Road
59	Tonglu Range Qr. to Dilgri Basti	6	Riyang Road
60	Dhodray-Lamagowa	7	Sittong-Shelpu Road
61	Tonglu to Relling Road	8	Birik Road
62	Palmajua to Relling Khola Road	9	Rolak Road
		10	Lanku Road

TABLE 9.1—VILLAGE ROADS—*contd.*

Serial No.	Name of Road	Serial No.	Name of Road
SILIGURI SUBDIVISION			
1	Old Siliguri to Matigara	8	Reli to Kankibong and Sookbhir
2	Salhari to Matigara Road	9	Sookbhir to Samalbong
3	Matigara to Champasari Road	10	Samalbong to Nimbong
4	Gossainpur to Siabhita	11	Sinji to Suruk and Samthar
5	Chhoto Nema to Subal Jote	12	Samthar to Nimbong <i>via</i> Pabringtar
6	Subal Jote to Baharu Jote	13	Suruk to Chunabhati and Bagrakote
7	Baramohansing to Tarabari Jote	14	Samthar to Chunabhati
8	Siabhita to Ruidhasa	15	Pabringtar to Nimbong
9	Rangapani to Ruidhasa	16	Nimbong to Chunabhati <i>via</i> Changkhim (Nobgaon)
10	Mahananda river (off Purana Siliguri) to Nirmal Jote	17	Nimbong to Budhabarey (Gtdubling)
11	Kestopur to Chowpukuria and then to Ganggram	18	Sindiprong to Loley Bridge
12	Goaltuli to Dhemahtuli	19	Pudung to 12th Mile
13	Tarbandha to Hanaqua	20	Loley Bridge to Budhabarey
14	Hanaqua to Sangatram	21	Loley Bridge to Kankibong
15	Bhalmansi Jote to Howdabhita and then to Ambari	22	Paiyung to Santuk Bridge
16	Backali to Siabhita	23	Pissium to Santuk
17	Adhikari to Ramchandra Jote	24	Santuk Bridge to Loley
18	Naxalbari to Baramuniram	25	Budhabarey to Patharjhora
19	Paharibhita to Badora	26	Budhabarey to Pashiting T. E.
		27	Pashiting to Gut Bridge
		28	Pashiting to 1 Mile
		29	Pashiting to Upper Fagu T. E.
		30	Nim to Phapokheti (Pankhasari)
		31	Ambioke to Dalim Khola
		32	Daling to Ambioke T. E.
		33	Sombaria to Gorubhathan
		34	Samsing to Kumai
		35	Kumai to Jholung River (Patengodak)
		36	Jholung to Patengodak
		37	Patengodak to Todey Tangta
		38	Todey Tangta to Aritar
		39	Aritar to Ramau River
		40	Ramau to 26th Mile
		41	Pedong to Ladam
		42	Pedong to Rangpoo River
		43	Pedong to Tenderbong (Sakyong)
		44	Bhalukhope to Sauga
KALIMPONG SUBDIVISION			
1	Kalimpong to Tista		
2	Kalimpong to Malli		
3	Kalimpong to Tarkhola		
4	Kalimpong to Suruk <i>via</i> Bong		
5	Kalimpong to Reli		
6	11th Mile to Jhandidhara		
7	Echhey to Sangser		

List of Roads in Forest Division

Serial No.	Situation	Name of Road	Serial No.	Situation	Name of Road
1	Kurseong Subdivision	Dhobijhora Connection Path	28	Siliguri Subdivision	Champta-Adalpur Road
2	Ditto	Ditto	29	Ditto	Mahanadi Gulma Boundary Road
3	Ditto	Forest School Road	30	Ditto	Upper Champasari Track (E-W.)
4	Ditto	Dhobijhora Cart Road	31	Kurseong and Siliguri Subdivisions	Gulma Chaklong Track
5	Ditto	Old Military Road	32	Siliguri Subdivision	Lower Champasari Track
6	Ditto	Sepoydhura Chimney Path	33	Ditto	Upper Champasari Jogijhora Cart Track
7	Ditto	Sepoydhura O. M. Road	34	Ditto	Khairani Golaghat Track
8	Ditto	Monson's Path	35	Ditto	Rongdong N. Boundary Track
9	Ditto	M-4 Connection Path	36	Ditto	Sukna-Sevoke Road
10	Ditto	Toong-Bagora Path	37	Ditto	Sukna-Rangdong Track
11	Ditto	Bagora-Dilaram Road	38	Ditto	Kyanuka Track
12	Ditto	Gibson's Path	39	Siliguri and Kurseong Subdivisions	Gulma Valley-Jogijhora Bridle Path
13	Ditto	Bagora-Mana Path	40	Siliguri Subdivision	Punding Bridle Path
14	Ditto	Chatakpur Boundary Path	41	Kurseong Subdivision	9th Mile Bridle Path
15	Ditto	Chatakpur-Lalkuti Road	42	Ditto	Sepoydhura Path
16	Ditto	Bagora Surial Path	43	Ditto	Koklong Bridle Path
17	Ditto	Bagora Bathian Path	44	Siliguri Subdivision	Sukna-Mahanadi Boundary Road
18	Ditto	Traffords Path	45	Ditto	Mohargong Cart Road
19	Ditto	Dukbangalow Mamrin Path	46	Ditto	Mohargong-Kharain Motor Road
20	Ditto	Haines Path	47	Kurseong and Siliguri Subdivisions	Golaghat-Silibhita Road
21	Ditto	Bagora Bungalow M-4 Boundary Path			
22	Ditto	Paglaajhora Bridle Path			
23	Ditto	Babukhola Mana Path			
24	Ditto	Babukhola Majua Path			
25	Ditto	Chatakpur Rambh Path			
26	Ditto	Golaghat Cart Track			
27	Ditto	Rungdong Valley Road (N. S.)			

TABLE 9.1—VILLAGE ROADS—concl'd.

Serial No.	Situation	Name of Road	Serial No.	Situation	Name of Road
48	Siliguri Subdivision	Singamari-Silibhita Road	86	Kurseong Subdivision	Bamanpokhri Eastern Bridle Path
49	Kurseong Subdivision	Bandarjhora Birdle Path	87	Ditto	Lamagumba Bridle Path
50	Siliguri Subdivision	Hatisar Motor Road	88	Siliguri Subdivision	Lower Mechi Track
51	Ditto	Approach Road to Inspection Bungalow	89	Ditto	Central Mechi Track
52	Ditto	Silvicultural Nursery Road	90	Kurseong Subdivision	Bamanpokhri Rubba Pln. Path
53	Kurseong Subdivision	Nursery Hatisar Motor Road	91	Ditto	Bamanpokhri Central Road
54	Ditto	Hatisar S-N. Motor Road	92	Ditto	Bamanpokhri Contour Path
55	Ditto	Suspension Bridge over Panchanan River	93	Ditto	Bamanpokhri Rubba Connection Road
56	Ditto	Sukna F. S. Depot Road	94	Ditto	Singbuli Bridle Path
57	Ditto	Approach Road to Range Office, Sukna	95	Ditto	Singbuli Contour Path
58	Siliguri Subdivision	Gulma Bridge	96	Ditto	Bonklong Bridle Path
59	Ditto	Tukriajhar Cart Road	97	Ditto	Phuaguri Forest Village Path
60	Ditto	Jabra Cart Road	98	Ditto	Phuaguri Bridle Path
61	Ditto	Kadma Balason Boundary Road	99	Ditto	Phuaguri Contour Path
62	Ditto	Bengdubi Depot Road	100	Ditto	Phuaguri Connection Path
63	Ditto	Khumchunadi Cart Track	101	Ditto	Khairbani Approach Road
64	Ditto	Multa Dalka Cart Road	102	Ditto	Approach Road to B. O.'s quarters at Khairbani and R. O.'s R. H.
65	Ditto	Deomani Sanyasi Track	103	Siliguri Subdivision	Lohagarh-Belgachi Motor Road
65(A)	Ditto	Hushia Cart Track	104	Ditto	Samardanga Cart Road
66	Ditto	Old Forest Bungalow Pantapari Bridle Path	105	Ditto	Sevoke Cart Road
67	Ditto	Dauhara Latua Track	106	Ditto	Sevoke-Sukna Cart Road
68	Ditto	Chaudhurani Track	107	Ditto	L. Ghoramari Foot Hill Bridle Path
69	Ditto	Bengdubi Block Latua Track	108	Ditto	Gulma Valley Bridle Path
70	Ditto	Bengdubi Depot Panthapari Track	109	Kurseong Subdivision	Sevoke Latpanchor Bridle Path
71	Ditto	P. W. D. Road Trehana Track	110	Ditto	Chawa Bridle Path
72	Ditto	P. W. D. Road Sanyasi Track	111	Ditto	Kalijhora-Latpanchor Bridle Path
73	Ditto	P. W. D. Road Deomani Track	112	Ditto	Kongdong-Setikhola Bridle Path
74	Ditto	Trehana Lalfa Track	113	Ditto	Kondong-Berrick Bridle Path
75	Ditto	Chaudhuri Singujhora Block	114	Ditto	Berrick-Sundong Bridle Path
76	Ditto	Tarubari Bridle Path	115	Ditto	Berrick-Reyang Bridle Path
77	Ditto	Hurha S. Boundary Road	116	Ditto	Berrick Hill Bridle Path
77(A)	Ditto	Hohagar Cart Road	117	Siliguri Subdivision	Silibhita Fair Weather Cart Road
78	Kurseong Subdivision	Bamanpokhri Top flat Circular Road	118	Kurseong Subdivision	Mana Latpanchor Path
79	Ditto	Central Road	119	Ditto	Mana Bridle Path
80	Ditto	Lamagumba Cart Road	120	Ditto	Latpanchor Path
81	Ditto		121	Ditto	Latpanchor Chiphey Khola Path
82	Siliguri Subdivision	Nipanna Bridle Path	122	Ditto	Latpanchor Golaghat Path
83	Kurseong Subdivision	Chengu-Khairbani Bridle Path	123	Ditto	Numbong Bridle Path
84	Ditto	Bamanpokhri Western Bridle Path			
85	Ditto	Bamanpokhri Central Bridle Path			

Source :—Deputy Commissioner, Darjeeling.

TABLE 9.2—ROADS AND BUNGALOWS

Part I—Roads and Bungalows maintained by the Public Works Department

I—Metalled Roads ; IA—Metalled, bridged and drained throughout ; IB—Metalled, partially bridged and drained ; II—Unmetalled Roads ; IIA—Unmetalled, bridged and drained throughout ; IIB—Unmetalled, partially bridged and drained ; III—Banked and surfaced with “Murum” or similar material but not drained ; IV—Banked but not surfaced, partially bridged and drained ; V—Cleared, partially bridged and drained ; VI—Cleared only

Serial No.	Class of Road	Name of Road	Length		Location of Dak and Inspection Bungalows and Remarks
			M	F	
1	2	3	4	5	6
1	I	Lloyd Botanic Garden Road—From Mount Pleasant Road via Mosque to Lebong Road	..	2	
2	I	Lebong Road—From Darjeeling Bazar to Lebong	5	2	
3	I	Mackenzie Road—From Post Office Road to Hill Cart Road at Darjeeling	..	4	
4	I	Tonga Road—From Auckland Road to Hill Cart Road at Darjeeling	..	4	
5	I	Ghoom Simanabusti Road—From Ghoom Station to Sunana	10	2	Forest Bungalows at Ramgiram, Rambh, Lepchajagat, Dobripani, Palnabajua and Batasi
6	I	Senchal Road—From Jorebungalow to Senchal	2	6	
7	I	Hum Road—From 6th mile of Peshoke Road to Old Cantonment	3	4	
8	I	Rangoot Road within Darjeeling Municipality	3	2	
9	I	Old Rangoot Road—From Bhutia Bustoc to Junction of New Rangut Road	..	2	At Peshoke on 15th mile
10	I	Jorebungalow to Teesta Bridge via Peshoke	16	6	
11	I	Lukna Adalpur Road—From Lukna to Adalpur	3	2	
12	I	Matigara Hill Cart Road—From Matigara to Darjeeling Hill Cart Road near Mahamady Bridge	2	2	
13	I	Station Yard Road, Siliguri—From Hill Cart Road to Siliguri Bazar Road	..	2	
14	I	Siliguri Bazar Road—From Station Yard Road to Station Feeder Road	..	2	
15	I	Station Feeder Road, Siliguri—From Ganges-Darjeeling Road to Bazar Road	..	6	
16	I	New Kutchery Road, Siliguri—From Hill Cart Road to Railway Station via Kutchery	..	4	At Siliguri—Inspection Bungalow
17	I	Matigara-Naxalbari Road—From Matigara to Naxalbari	11	6	At Bagdogra on 8th mile of Siliguri Naxalbari Road via Matigara
18	I	Portion of Ganges-Darjeeling Road—From Karagota to Siliguri	2	2	
19	I	Tirihana-Naxalbari Road—From Naxalbari to Tirihana	8	4	
20	I	Tirihana-Bagdogra Road—From Tirihana to Bagdogra	5	6	
21	I	Painghatta-Kotna Road—From Painghatta to Kotna	3	2	
22	I	Approach Road to Dow Hill School buildings at Kurseong—From near the Clarendon Hotel, Kurseong, to the front of New Victoria Boys' School, Dow Hill	1	4	
23	I	Road connecting both the Schools at Dow Hill (Dow Hill Girls' School to Victoria Boys' School) at Kurseong	..	6	
24	I	Diversion of Hill Cart Road through Kurseong Bazar joining Hill Cart Road—From below the Charitable Dispensary to Railway Station above Bazar	..	2	
25	I	Darjeeling Hill Cart Road—From Darjeeling to Siliguri	49	..	At Darjeeling on 48th mile
26	I	Teesta Valley Road (including portion of Road from Sevoke to Siliguri)—From Teesta Bridge to Siliguri	32	4	At Kalijhora on 16th mile At Mirik on 21th mile At Teesta Bridge on 32th miles
27	I	Lachen Road—From Teesta Bridge to Rangpoo	14	2	At Melli on 3rd mile

TABLE 9.2—ROADS AND BUNGALOWS—contd.

Serial No.	Class of Road	Name of Road	Length		Location of Dak and Inspection Bungalows and Remarks
			M	F	
1	2	3	4	5	6
28	I	Approach Road to Reang Station on the Teesta Valley Extension, D. H. Railway	..	2	
29	I	Lower Bridle Road, Kalimpong	1	4	
30	I	Upper Cart Road, Kalimpong	1	6	
31	I	West Rickshaw Road, Kalimpong	1	6	
32	I	Portion of Old Military Road—From Jorebungalow to Kurseong	3	..	
33	I	Runkingpong Road, Kalimpong	1	6	
34	II	Matigara Kurseong Road -- From Matigara to Kurseong	19	..	
35	II	Rangteet Valley Road (excluding the portion lying within Darjeeling Municipality)—From Darjeeling to Teesta Bridge	13	6	
36	II	Rishi Road—From Teesta Bridge to Rishi	26	..	At Kalimpong on 10th mile
37	II	Jungiguard Road from Rikissun Junction to Jungiguard <i>via</i> Minglas and Garubathan	24	..	
38	II	Link Road From Rishi Road to Jungiguard Road	2	..	
39	II	Painghatta-Dudhujhora Road—From Painghatta Bridge to Dudhujhora	2	4	
40	II	Short Cut Road (Giddapahar to Rangtong <i>via</i> Gyalari on Hill Cart Road)	7	..	At Tindhari near 17th mile of Darjeeling Hill Cart Road
41	II	Sumanabusti to Dudhujhora Road	22	6	
42	II	Simanabusti to Phallut Road and on to Chubhanjan (excluding 918 feet under Forest Department)	40	6	Forest Bungalows at Rimick and Ramman
43	II	Calcutta Road—From Jorebungalow to Jalapahar Road	3	2	
44	II	Manjitar Approach Road From 8th mile Rangteet Road to Manjitar Bridge	3	2	

There are Forest Bungalows at : (a) Kalimpong subdivision, Chunabhati, Ghish, Garubathan, Samsing, Khumani, Tarkhola, Nazeok, Dalpachand, Rissun, Kalijhora and Pashiting ; (b) Kurseong subdivision at Bagora, Bunklong, Latpanchar, Mana and (c) Siliguri subdivision at Sukna, Khairbam and Pengdubi.

Part II—District Committee Roads

Serial No	Class of Road	Name of Road	Length		Location of Dak and Inspection Bungalows and Remarks
			M	F	
1	2	3	4	5	6
1	IIA	Darjeeling to Little Rangit	6	..	D. I. F. Bungalow (old) at Senchal
2	IIA	Tukver to Singla Bazar	6	..	D. I. F. Bungalow (new) at Senchal
3	IIA	Darjeeling to Pulbazar	6	..	
3A	IIA	Pulbazar to Kolbong	6	..	Inspection Bungalow at Lopchu
5	IIA	Singha Bazar to Raman	1	4	
6	IIA	Tukdah Glenburn to Ranjit	11	..	Forest Bungalow at Tukdah
7	IIA	Tukdah (Cantonment) to Reyong	10	..	Inspection Bungalow at Tongloo
7A	IA	P. W. D. boundary pillars to the Junction of Road No. 7	3	2	Inspection Bungalow at Sandakphu
9	IIA	Lamidara to Chongtong	9	..	
10	IIA	Rangbul to Namsu Bridge	15	..	Inspection Bungalow at Phallut
11	IIA	Balason to Rongbong Bridge	5	4	
12	IIA	Sonada to Balasan	9	..	
13	IIA	Nagri to Sukiapokri	8	6	Inspection Bungalow at Jorepokri
14	IIA	Lepcha to Pulbazar	9	..	
15	IIA	Nagri Spur to Renybong	2	6	
16	IIA	Badamtom to Burnesbeg	5	..	Inspection Bungalow at Badamtom
18	IIB	Singha Bazar to Burnesbeg	7	..	
18A	IIB	Pulbazar to Subukam	30	..	
18B	IIA	Pusumbing to Road No. 13	12	..	
18C	IIA	6th mile of Peshoke Road to Tukdah Cantonment	3	..	
19	IIA	Gunti to Mahanadi	2	2	
19A	IIA	Sepoydhura Old Bazar to Road No. 19	9	..	
20	IIA	Gunti to Mamring	6	4	
21	IIA	Sonada Brewari to Namsu	8	..	
22	IIB	Namsu to Dudhujhora	7	..	
23	V	Panighatta Bridge to Long View	2	..	

TABLE 9.2—ROADS AND BUNGALOWS—concl'd.

Serial No.	Class of Road	Name of Road	Length		Location of Dak and Inspection Bungalows and Remarks
			M	F	
1	2	3	4	5	6
24	IIA	Namsu to Road No. 26D	7	..	D. B. Dak Bungalow at Mirik
25	IIB	Kurseong to Sinbali Bridge	7	..	
25A	IIA	Manjha Bridge to P. W. D. Frontier Road	1	..	
26A	IIB	Sepoydhara to Road No. 21	3	..	
26B	IIB	Margarett's Hope Birgde to Tung	1	4	
26C	IIB	Monte Viot T. E. to Coffebari T. E.	7	..	
26D	IIB	Rongbong to Frontier Road near Negali Bungalow	3	..	
27	IIA	Matigara (Matigara-Naxalbari Road) to Phansidewa	8	6	D. B. Bungalow at Siliguri
28	IIB	Bagdogra to Atal	4	6	
29	IIB	Kharibari to Phansidewa	12	4	At Kharibari Bungalow
30	IIB	Garidhura to Panighatta Terai Roads	3	..	
30A	IIB	Panighatta to Moslie	5	..	
32	IA & IIB	Naxalbari to Debiganj via Kharibari.	6	..	and
33	IIB		9	4	
33	IIA	Khaprail to Hill Cart Road	2	4	
34A	IIB	Garidhura to junction with Bagdogra-Tirihana Road including Balasan Crossing	2	6	
39	VI	Hill Cart Road to Shapur T. E.	2	..	
40	IIB	Dumri Inspection Bungalow to Phansidewa via Bagdogra Husli Bridge.	8	6	
41	IA & IIA	Matigara-Naxalbari Road to Ghugujhora	7	2	and
43	V	Mahjha to Toribari	1	..	
44	IV	Khaprail to Toribari	3	..	
44A	IV	Patanbari to Kurseong	4	..	
47	IIB	Atal to Junction with Road No. 31	..	4	
49	IIB	Atal to Cambrain	6	..	
51	IIA	Tirihana to Panighatta via Old Terai	2	..	
52	VI	Road No. 41 to Road No. 47 Kalimpong Road	4	2	
53	IIB	Kalimpong to Tarkhola	6	2	
54	VI	Kalimpong town to Bong Busty up to Forest Boundary	3	2	
55	VI	Subtiguri to Garidhura via Tarabari	2	..	
56	VI	Old Siliguri to Matigarahat	2	..	

Source :—District Board, Darjeeling.

TABLE 9.3—LENGTH OF ROAD COMMUNICATIONS MAINTAINED BY PUBLIC AUTHORITIES AS AT 31ST DECEMBER 1948

Length of metalled roads maintained by the Works and Buildings Department (in miles)	Length of unmetalled roads maintained by the Works and Buildings Department (in miles)	Length of metalled roads maintained by the district boards (in miles)	Length of unmetalled roads maintained by the district boards (in miles)	Length of metalled roads maintained by the municipalities (in miles)	Length of unmetalled roads maintained by the municipalities (in miles)	Total length of metalled roads (in miles)	Total length of unmetalled roads (in miles)	Grand total
242.1	87.6	13.9	313.0	41.8	16.1	297.8	416.7	714.5

Note :—Figures of Union Boards are not shown in this statement.

Source :—Works and Buildings Directorate.

TABLE 9.4—RAILWAY STATIONS

Name of Railway Line and Station	Distance of each Railway Station by rail		Name of Railway Line and Station	Distance of each Railway Station by rail	
	Miles	From		Miles	From
1	2	3	1	2	3
North Eastern Railway, Manihari Ghat—Pandu Line			Kalijhora Siding	..	Siliguri
Adhikari	174	Manihari Ghat	Rilli	..	Ditto
Batasi	179	Ditto	Riyang	25	Ditto
Naksalbari	190	Ditto	Gielle Khola	30	Ditto
Hatighisa	195	Ditto	North Eastern Railway, Siliguri-Darjeeling Line		
Bagdogra	205	Ditto	Siliguri Junction	..	Siliguri Junction
Matigara	213	Ditto	Panchanai Junction	1	Ditto
North Eastern Railway, Siliguri—Gielle Khola Line—(Teesta Valley)			Sukna	5	Ditto
Siliguri	..	Siliguri	Rangtong	11	Ditto
Siliguri Road	5	Ditto	Chunbhati	15	Ditto
Siliguri North	16	Ditto	Tindharia	18	Ditto
Gulma	20	Ditto	Gayabari	22	Ditto
Sevoke	..	Ditto	Mahanadi	26	Ditto
			Kurseong	31	Ditto
			Tong	35	Ditto
			Sonada	40	Ditto
			Ghum	46	Ditto
			Darjeeling	50	Ditto

TABLE 9.5—LIST OF POST OFFICES

Serial No.	Branch Offices	Sub-Offices	Serial No.	Branch Offices	Sub-Offices
1	2	3	1	2	3
	SADAR SUBDIVISION			P. S. MIRIK	
	P. S. DARJEELING		9	....	Nagrispur
1	....	Jalapahar		SILIGURI SURDIVISION	
	P. S. JORE BUNGALOW			P. S. SILIGURI	
2	....	Ghoom	10	Sevoke	....
3	....	Sonada		P. S. KHARIBARI	
	P. S. SUKHIPOKRI		11	....	Naksalbari
4	....	Sukhiapokri		KALIMPONG SUBDIVISION	
	P. S. RANGLI RANGLIOT			P. S. KALIMPONG	
5	....	Lopchu	12	Marybong	....
6	Mangpu	....	13	....	Kalimpong
	KURSEONG SUBDIVISION		14	Algarh	....
	P. S. KURSEONG		15	Pedong	....
7	....	Kurseong	16	....	Tista Bridge
8	Gayabari	....		

Source:—Indian Posts and Telegraphs Department.
[List incomplete, no complete list being readily available with the Department.]

TABLE 9.6—POLYMETRICAL TABLE OF DISTANCES
(Compiled by the District Officer)

Note :—Distances are shown in miles as follows :—

By Railway 24
By Road 10

NAME OF POLICE STATIONS

Garubethan	Jore Bungalow	Kalimpong	Kharibari	Kurseong	Phansidewa	Pulbazar	Rangli Rangliot	Siliguri	Sukhia-pokri	Distance and name of the nearest Rail-way Station	
• 1	2	3	4	5	6	7	8	9	10	11	
Darjeeling	4, 64	4, 1	4, 28½	77, 3	19½, 2	51, 13	9	4, 13	51, 1	4, 8½	Darjeeling, D. H. Railway, 1 mile
	Garubethan	63	33½	76, 17	81, 12	49, 23	100, 20	58	49, 11	96, 18	Mall, B. D. Railway, 11 miles
	Jore Bungalow	27½	78, 3	15½, 1	47, 12	4, 10	12	47	7½	Ghoom, D. H. Rail-way	
	Kalimpong		52, 15	15½, 28½	30, 24	77, 12	73, 15	30, 12	35	Gielle Khola, D. H. Railway, 12 miles	
		Kharibari		57, 4	16, 12	51, 36	47, 38	26	47, 33½	Siliguri, D. H. Rail-way, 3 miles	
	•		Kurseong		31½, 13	19½, 11	15½, 13	31½, 1	15½, 8½	Kurseong, D.H. Rail-way, 1 mile	
				Phansidewa		61, 18	57, 21	9, 12	57, 16½	Bagdogra, D. H. Railway, 9 miles	
						Pulbazar	4, 22	51, 10	4, 17½	Darjeeling, D. H. Railway, 10 miles	
							Rangli Rangliot	47, 12	19½	Ghoom, D. H. Rail-way, 12 miles	
								Siliguri	47, 7½	Siliguri, D. H. Rail-way	
									Sukhiapokri	Ghoom, D. H. Rail-way, 7½ miles	

Source :—Bengal District Gazetteer (B. Volume), Darjeeling.

ANCIENT MONUMENTS AND FAIRS

***TABLE 10.1—GLOSSARY OF THE BETTER KNOWN ANCIENT MONUMENTS
IN THE DISTRICT OF DARJEELING**

*There are no ancient monuments worthy of record which go further back than 1800 A. D.

TABLE 10.2A—LIST OF IMPORTANT FAIRS AND MELAS

Serial No.	J. L. No.	Name of place where mela or fair is held	Time (English month) when mela is held	Local religious or other occasion of the mela	Duration of mela or fair (num- ber of days)	Average total attend- ance
1	2	3	4	5	6	7
SADAR SUBDIVISION						
THANA : RANGLI RANGLIOT						
1		Triboni	January	Local religious	4	4,000
THANA : PULBAZAR						
2		Singla	Do.	Local religious	3	1,000
3		Pulbazar	Do.	Exhibition	3	3,000
4		Bijanbari	Do.	Makar Sankranti	4	3,000
5		Lodoma	Do.	Religious	3	1,500
KURSEONG SUBDIVISION						
THANA : KURSEONG						
6	44	Giddapahar	April	Religious	6	1,000
SILIGURI SUBDIVISION						
THANA : SILIGURI						
7	(In 82)	Bagdogra	September	Durga puja	1	2,000
8		Atharakhai (UB III)	Do.	Do.	1	2,000
9	(In 14)	Khaprul (UB IV)	Do.	Do.	1	500
10	102	Matigara Hat (UB VI)	Do.	Do.	1	2,000
11		Tarbandha	February	Sivaratri	4	3,000
THANA : PHANSIDEWA						
12	69	Tarbandha	March	Shibchaturdashi	3	3,000
13		Jalash	Do.	Baruni snan	2	3,000
THANA : KHARIBARI						
14	(In 1)	Bodrajote	September, October	Durga puja	2	150
15	22	Balahijhora	Do.	Do.	1	150
16	(In 9)	Shyambhanjote	Do.	Do.	1	100
17	(In 25)	Surajmaljote	Do.	Do.	1	100
18	(In 47)	Paharibhite	Do.	Do.	1	300
19	38	Debiganja	Do.	Do.	1	100
20		Borokomat	Do.	Do.	1	150
21	(In 45)	Gurudayaljote	February, March	Shibaratri	1	250
22	(In 48)	Haodabhita	September, October, February, March	Durga puja and Shibaratri	1 (in each occasion)	300
23	48	Kharibari	September, October	Durga puja	1	300
24	46	Kishordoba	February, March	Shibaratri	2	300
25	20	Dohajuri	Do.	Dolejatra	3	250
26	(In 13)	Pemajote	October	Kali puja (Dwipanwita)	2	150
27	(In 95)	Rangalijote	Do.	Do.	1	200
28	81	Nakshalbari	September or October	Durga puja and Kali puja	1 (in each occasion)	500
29	(In 87)	Oarishjote	February, March	Shibaratri	2	400
30	(In 4)	Gagaruramjote	October	Kali puja	1	100
31	(In 35)	Tarabarijote	Do.	Haribola	1	100
32	(In 28)	Chunilaljote	Do.	Moharum	1	100
33	(In 89)	Manjayajote	Do.	Kali puja	2	150
34	(In 90)	Manikjote	Do.	Do.	1	150
KALIMPONG SUBDIVISION						
THANA : KALIMPONG						
35	5	Pedong (Topkhana)	January	Agricultural Exhibition mela	3	1,500
36	(In 24)	Ichhay Busti	Do.	Religious	3	500
37		Boni Mela	Do.	Makar Sankranti	4	3,000

Source :—By courtesy of the Superintendent of Police, Darjeeling.

TABLE 10.2B—LISTS OF HATS (MARKETS)

Serial No.	Name of the Market or Hat	Location	Main items of business	Days of operation
1	2	3	4	5
SADAR SUBDIVISION				
1	Darjeeling Market	P. S. Darjeeling	Orange, potato	Daily
2	Jorebunglow Market	P. S. Jore Bungalow	Potato, rice, cardamom	Daily
3	Sonada Market	Do.	Vegetable, cardamom	Sunday
4	Pulbazar Market (Bijanbari)	P. S. Pulbazar	Potato, <i>chirata</i> , orange	Friday
5	Ladhama Market	Do.	Cattle, potato, <i>chirata</i> , orange	Wednesday
6	Ranibir Bazar	Do.	Potato, <i>chirata</i> , Cardamom, orange	Sunday
7	Singh Mara	Do.	Cardamom, potato, <i>chirata</i>	Do.
8	Sukhiapokri Market	P. S. Sukhiapokri	Potato, <i>chirata</i> , butter, peas	Daily
9	Pokhariabong Market	Do.	Cardamom, English vegetable, potato	Sunday
10	Simana Bazar	Do.	Potato, peas, English vegetable	Daily
11	Monbhanjan	Do.	Potato, <i>chirata</i> , butter	Thursday
12	Rongliranliot	P. S. Rangli Rangliot	Maize, vegetable	Sunday
KURSEONG SUBDIVISION				
13	Kurseong Market	P. S. Kurseong	Maize, cereals, potato, egg, tobacco	Sunday
14	Tindharia Market	Do.	Maize, cereals, egg, milk	Do.
15	Sepahidhura Market	Do.	Cereals, potato, vegetable, milk	Do.
16	Mirik Bazar	P. S. Mirik	Cardamom, vegetable	Do.
SILIGURI SUBDIVISION				
17	New Bagdogra Hat	P. S. Siliguri	Paddy, rice, vegetable, Potato	Sunday
18	Salbari Hat	Do.	Paddy, potato, fish	Wednesday
19	Kaprut Hat	Do.	Do.	Monday
20	Matigara Hat	Do.	Paddy, rice, flattened rice, rice, parched rice, jute	Tuesday, Friday
21	Siliguri Hat	Do.	Paddy, fish, dal, gur	Sunday, Wednesday
22	Kharibari Hat	P. S. Kharibari	Paddy, rice	Monday, Friday
23	Fudbari Hat	Do.	Rice, vegetable, milk	Sunday
24	Batashi Hat	Do.	Rice, vegetable	Wednesday, Saturday
25	Naxalbari Hat	Do.	Paddy, rice, vegetable, gur, fish	Tuesday, Saturday
26	Phansidewa Hat	P. S. Phansidewa	....	Sunday, Thursday
27	Hashigarah Hat	Do.	....	Monday, Friday
KALIMPONG SUBDIVISION				
28	Kalimpong Market	P. S. Kalimpong	Egg, butter, betelnut	Wednesday, Saturday
29	Sombari Hat	P. S. Garubathan	Dal, vegetable, egg	Monday

Source :—By courtesy of the Joint Director of Agriculture (Marketing), West Bengal.

VILLAGE DIRECTORY

This directory renders an account of each Village and each Ward of a Town entered on the Jurisdiction Lists for each thana maintained by the Director of Land Records and Surveys, West Bengal. It gives the J. L. number, name, and area of the village, and, where inhabited, its number of occupied houses, population, number of literates, with the livelihood of the population classified into eight major livelihood classes of which four are agricultural and four non-agricultural. The four agricultural livelihood classes are—I—Cultivators of land wholly or mainly owned and their dependants, II—Cultivators of land wholly or mainly unowned and their dependants, III—Cultivating labourers and their dependants and IV—Non-cultivating owners of land; Agricultural rent receivers and their dependants. The four Non-agricultural livelihood classes are persons, including their dependants, who derive their principal means of livelihood from V—Production other than cultivation, VI—Commerce, VII—Transport, and VIII—Other services and miscellaneous sources.

The villages or towns of a thana are grouped under its name and the total of each column has been struck for each thana with an account of its rural and urban population. Thanas have been arranged according to the census code serial.

Symbols will frequently be seen against the name of a village or town, and they indicate that the institution which the symbol denotes is physically situated within the village. The symbols are:—

P	denotes	Primary School
S	„	High English School
H	„	Hospitals, A. G. or F.R.E. Hospitals
D	„	Dispensaries
Rh	„	Rural Health Centres
PO	„	Post Offices
M. A.	„	Municipal Area

Where figures like 5P or 2S or 2H, etc., occur they denote that the mauza or town has five Primary Schools or 2 High Schools or 2 Hospitals, etc.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
SADAR SUBDIVISION													
1 P. S. Darjeeling													
1	Tukvar Tea Estate 5P	3,218·01	524	2,773	490	45	..	..	..	2,630	26	3	69
	Singla Tea Estate		400	1,574	339	56	..	..	..	1,471	7	..	40
	Barnesbeg Tea Estate		187	784	195	..	..	..	..	693	8	3	80
2	Rangit Forest	697·00	1	20	2	..	..	..	..	4	..	..	16
3	Badamtam Tea Estate, P	2,853·33	247	2,277	212	..	..	..	..	2,147	15	11	104
	Badamtam D. I. Fund		29	105	3	..	..	..	..	..	..	..	105
4	Lama's Garden.	240·03	Included in the Badamtam Tea Estate (J. L. No. 3)										
5	Phubaring Tea Estate	1,357·53	201	1,050	224	..	..	..	..	988	4	1	57
6	Pattabong Tea Estate	590·50	195	908	186	..	..	..	..	657	83	..	168
7	Lehong Tea Estate (Vah. Tukvar) PO	1,857·51	248	1,354	231	..	..	..	..	1,254	14	3	83

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
1 P. S. Darjeeling—concl'd.														
8	Soom Tea Estate, 2P	1,258.70	309	1,473	237	..	..	..	..	1,363	34	2	74
9	Singtam Tea Estate, 2P	1,840.19	588	2,614	395	..	30	..	..	2,155	184	18	227
10	Rishihat Tea Estate, 2P	500.00	175	721	191	..	..	..	..	681	7	4	29
11	Salu Tea Estate,	284.00	Included in J. L. No. 3 of Jore Bungalow P. S.											
12	Rishihat Khas-mahal	511.82	100	478	58	314	134	19	..	..	9	..	2
13	Barbatia Khas-mahal	236.33	67	407	31	328	52	4	..	4	..	..	19
14	Bloomfield Tea Estate, P	721.04	226	1,000	125	..	..	..	..	897	64	..	39
15	Sidarpong, P	884.86	118	536	96	..	..	..	..	520	5	..	11
16	Happy Valley Tea Estate	149.18	139	684	76	..	..	..	..	597	58	..	29
17	Hill Cart Road	52.26	Included in Urban Area											
18	Rungneet T. E.	399.99	107	519	149	..	..	..	..	427	2	1	89
19	Darjeeling Steinthal T. E.	2,505.63	31	161	15	..	..	..	..	152	6	..	3
	Burdawan R. Estate		189	914	339	188	..	2	..	236	21	6	461	
	Jalapahar Cantonment		371	1,709	810	17	..	..	..	105	57	2	1,528
	Lebong Cantonment		262	999	564	..	..	..	..	49	41	..	909
	Patlaybas and Soom Reserve Forest		40	206	61	..	..	..	..	85	50	..	71
20	Ging Toa Estate 2P	1,723.22	436	2,284	351	..	..	..	..	2,130	37	8	10
21	Banock Burn T. E.	712.96	213	980	215	..	..	..	..	890	5	2	83
22	Minchu T. E.	443.86												
23	Alubari T. E. P	1,290.08	65	266	45	10	..	..	..	198	..	..	58
	Aloobari Busty Pandam T. E.		8	44	5	44	..	..	..	..	..	..	..
			209	1,052	260	76	..	..	..	790	99	..	87
24	Charles Field	258.64	350	1,674	166	1	..	..	..	1,528	38	..	107
25	Dawaipani Tea Estate	1,236.00												
Darjeeling Municipality 22P, 5S, 6H, 3D, Rh, 5PO M.A.														
	Ghoom		1,241	5,924	1,929	467	4	3	..	712	884	488	3,366	
	Colinton		914	4,445	2,109	320	2	5	5	262	354	256	3,241	
	Club		600	3,238	1,533	9	..	..	19	219	374	132	2,485
	Chandmari		885	4,337	2,180	..	..	5	3	430	1,354	104	2,441
	Lower Beech Wood		887	3,799	2,118	12	2	..	33	445	900	306	2,101	
	Bazar		907	3,965	1,919	77	..	..	10	450	1,317	212	1,899
	Birch Hill		388	1,646	868	13	..	1	19	123	100	22	1,368	
	Bhutia Busty		634	2,659	903	14	5	..	14	217	253	40	2,116	
	Kutchery		668	3,307	1,466	32	..	..	..	383	419	236	2,237
	Singtom House		23	109	23	..	..	..	..	..	1	..	108
	Sidrapong Power House		35	176	52	..	..	..	..	1	..	..	175
Total			7,182	33,605	15,100	944	13	14	103	3,242	5,956	1,796	21,537	
Rural			6,035	29,566	6,071	1,079	216	25	..	22,651	874	64	4,657	
Urban			7,182	33,605	15,100	944	13	14	103	3,242	5,956	1,796	21,537	
Grand total			25,822.67 acres or 40.35 sq. miles	13,217	63,171	21,171	2,023	229	39	103	25,893	6,830	1,860	26,194

T. E. denotes Tea Estate.

J. L. No.	Name of Village or Towns/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
2 P. S. Jore Bungalow													
1	Kael and Sidra-bong T. E.	405.75	174	776	165	5	3	..	..	730	18	..	20
2	Lingia Tea Estate	554.10	220	1,035	75	..	..	..	..	982	5	4	44
3	Mariabong Tea Estate	187.15	78	394	26	..	..	..	..	389	..	..	5
4	Tumsong Tea Estate	441.00	191	775	88	..	..	..	..	746	4	..	25
5	Tumsong Khas-mahal, P	176.65	58	365	45	209	..	142	..	6	..	8	..
6	Mim Tea Estate	995.62	209	1,031	221	..	..	..	..	1,010	..	..	21
7	Parnaguri Khas-mahal	1,175.20	115	606	51	483	..	123	..	..	..	..	..
8	Ghoompahar Forest	3,195.00	121	612	102	..	1	..	..	128	20	17	446
9	Pulungdong Khas-mahal P	1,548.90	181	1,121	256	963	93	1	..	16	..	1	47
10	Pulungdong T. E.	251.50	246	1,346	231	..	..	..	..	1,323	9	..	14
11	Pubong Tea Estate 2P	1,021.00											
12	Kusumbong T.E., P	1,435.00	241	1,232	120	..	22	..	..	1,091	2	..	117
13	Jorebunglow	1,061.83	Included in Urban Area of Darjeeling Municipality										
14	Jarelhatta	215.11	Uninhabited area included in J. L. No. 8 of Darjeeling P. S. Inhabited area included in Darjeeling Municipal Area										
15	Senchal Forest	7,461.88	249	1,231	243	..	..	..	..	694	48	55	434
16	Rangaroong T. E.	368.34	81	361	52	..	..	..	..	330	9	3	19
17	Dooteria Forest	8.77	Included in J. L. No. 15										
18	Rangbul C. RR. P	1,067.48	79	394	139	28	..	5	..	48	42	81	190
19	Dooteria T. E. P	4,461.41	226	2,522	113	553	..	2	..	1,793	50	8	116
20	Hope Town T.E.	536.00	Included in J. L. No. 26										
21	Hope Town Settlement	4,796.39	247	1,258	153	13	3	..	..	711	137	8	386
	Kaloj Valley T. E.		281	1,663	394	..	..	..	..	1,577	4	..	82
	Tungsong T. E.		176	985	195	..	..	..	..	964	7	..	14
	Mondakoti T. E.		497	2,091	276	..	..	6	..	2,026	16	..	43
	Oaks T. E.		144	821	70	..	..	..	..	776	10	1	34
	Cedars T. E.		148	606	64	..	..	..	..	593	1	..	12
	Rangmook T. E.	324	1,665	66	..	..	..	..	1,614	20	..	31	
22	Sonada C. RR. 2P	296.17	93	489	116	35	..	..	..	20	162	83	189
23	Sonada Forest	Included in J. L. No. 15											
24	Sonada Brewery PO	196.62	102	774	161	1	..	..	..	18	9	8	738
25	Hill Cart Road	18.10	Included in J. L. Nos. 15, 18, 22 and 24										
26	Ringtong T. E. (Gunawar)	1,464.75	197	2,021	192	..	..	..	..	1,827	89	4	101
27	Ringtong T. E. (Margaret Hope)	1,632.46	328	1,528	330	..	..	..	..	1,378	14	..	136
28	Nahore T. E. (Balason)	1,150.00	211	1,242	122	..	..	..	..	1,208	..	..	34
Total (Entirely Rural)		36,122.18 acres or 56.44 sq. miles	5,217	28,944	4,069	2,290	122	279	..	21,998	676	281	3,298

T. E. denotes Tea Estate.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/ Ward in acres	No. of occupied houses	Popu- lation	No. of literate	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
3 P. S. Pulbazar													
1	Singalila Forest P, Rh	Included in J. L. No. 1 of Sukhia- pokri P.S. 29,988.98	181	947	51	340	273	132	..	115	..	..	87
2	Chebu Lama's Estate 23P	Split up as follows											
	Bijanbari Es- tate, Pool- Bazar Rh, PO		139	463	136	19	13	..	..	48	194	..	189
	Bijanbari Es- tate, Bijanbari		166	590	180	..	26	21	..	47	161	10	325
	Bijanbari Es- tate, Nore		169	921	186	915	..	..	..	..	..	..	6
	Bijanbari Estate, Lungchukro		49	206	26	179	9	12	..	..	..	..	6
	Bijanbari Estate, Samalbong		93	417	36	341	68	..	..	3	..	..	5
	Bijanbari Es- tate, Ananden		40	216	22	185	..	22	..	7	..	..	2
	Bijanbari Es- tate, Lingten		61	318	51	224	93	1	..	..	..	..	..
	Bijanbari Es- tate, Sirishay		55	276	44	168	66	..	..	..	..	..	42
	Karmi Estate, Naya Busty		120	597	114	370	191	25	..	8	..	..	3
	Karmi Estate, Kajum		80	429	51	253	133	32	..	4	..	..	7
	Karmi Estate, Singla		79	242	3	44	144	6	..	2	20	..	26
	Karmi Estate, Goke		123	603	21	329	252	12	..	3	7	..	..
	Karmi Estate, Takbia		123	626	3	552	67	..	7	..	..	..	..
	Karmi Estate, Nezi		149	914	16	570	341	3	..	..	..	..	..
	Lodhoma, D. I. Fund Rh		58	292	46	54	9	..	..	31	86	..	112
	Rimbick D. I. Fund		44	219	61	83	5	55	..	13	50	..	13
	Khasmahal, Majua		108	502	55	464	87	4	..	..	..	..	7
	Khasmahal, Singbung- Dara		149	1,113	158	1,058	16	2	..	37	..	..	..
	Khasmahal, Dangia		150	805	105	633	148	4	..	9	..	..	11
	Khasmahal, Dangia Bazar		7	39	9	34	3	..	1	..	1	..	1
	Khasmahal, Relling		264	1,308	215	787	472	17	1	4	1	..	26
	Khasmahal, Lamagaon		191	982	79	711	255	..	..	..	..	..	15
	Khasmahal, Kainjalie		221	973	102	505	388	57	..	..	..	..	23
	Khasmahal, Jhepi		164	863	75	659	151	47	..	..	..	..	6
	Khasmahal, Jhepi Bazar		29	125	39	43	4	42	..	..	27	..	9
	Khasmahal, Kangkibong		296	1,575	183	1,413	154	1	..	1	..	..	6
	Khasmahal, Hatta		105	630	70	450	180	..	..	..	..	..	..
	Khasmahal, Lodhoma		222	1,435	59	1,293	112	..	..	29	..	..	1
	Khasmahal, Namla		97	543	2	517	5	..	..	19	..	..	2
	Khasmahal, Rimbick, I		272	1,597	61	1,115	458	21	..	..	..	..	3
	Khasmahal, Rimbick, II		163	1,020	192	770	191	59	..	..	..	..	..

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/ Ward in acres 3	No. of occupied houses 4	Popu- lation 5	No. of literate 6	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
3 P.S. Pulbazar—concl'd.													
3	Murmidong	1,645.00	131	645	14	509	136	..	..	..	..	..	..
4	Kolbong P		83	491	67	484	..	7	..	..	..	..	..
5	Chongtong T. E., 2P Liza Hill, T E .	2,289.50	720	3,208	83	..	..	..	..	3,079	25	3	101
			180	739	198	..	..	..	..	696	3	..	40
Total (Entirely Rural)		33,923.48 acres or 53.01 sq. miles	5,281	26,929	2,813	16,071	4,450	582	9	4,155	575	13	1,074

4 P. S. Sukhiapokri

1	Singalila Forest	42458.00	72	341	39	174	..	..	..	125	14	..	28
	Tonglu Forest												
2	Simana Basti P	11.37	51	176	58	..	..	3	..	24	48	..	101
3	Sukiapokri 2P, Rh, PO	20.08	403	1,864	507	28	8	60	..	311	427	212	818
4	MimNagri Range 2P	3,292.00	104	749	129	14	..	..	..	355	61	54	205
5	Pokhribong D. I. Fund Pokhribong Khasmahal	664.83	86	367	145	86	8	4	1	57	105	16	90
			114	614	102	590	..	23	..	..	..	..	1
6	Samrik T. E. (Simripani)	1,100.00	225	1,018	168	..	..	..	..	952	14	..	52
7	Molatry T. E. (Avengrove)	874.41	306	1,169	193	..	..	..	..	1,066	44	12	47
8	Dhajea T. E.	767.00	190	897	153	..	..	..	..	843	41	..	13
9	Dhajea Khas- mahal P	338.64	74	382	27	243	10	126	..	..	..	..	3
10	Nagri Farm T. E. P	1,411.67	417	2,034	264	..	..	..	..	1,841	25	11	157
11	Mangarjung T.E.P (Nagri T.E.)	1,390.00	463	2,282	442	..	..	..	..	2,184	7	22	69
12	Sungma T. E. P (Sagmaru)	550.90	243	1,204	127	..	..	..	..	1,076	8	21	99
13	Turzum T. E. P	564.29	197	968	177	..	..	..	..	922	..	1	45
14	Solimbong T. E. (Soolbong)	2,200.00	263	1,174	277	..	..	..	..	1,118	13	..	43
15	Chamung T. E. P		108	1,101	148	..	..	..	..	1,042	9	..	50
16	Rongbong Basti (Achhalal Hatta)	1,649.57	144	719	26	598	35	40	3	..	..	..	43
17	Seyok T. E. P	1,180.10	203	1,175	175	..	..	..	..	1,111	4	..	60
18	Gopaldhara Tea Estate P	820.00	202	1,024	66	..	..	..	..	984	20	..	20
Total (Entirely Rural)		59,291.96 acres or 92.64 sq. miles	3,665	19,258	3,283	1,733	61	256	4	14,011	340	349	2,004

T.E. denotes Tea Estate.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
5 P. S. Rangli Rangliot													
1	Kambal Tea Estate	1,749.00	333	1,639	269	..	..	..	..	1,613	3	2	21
2	Teesta Valley Forest 2P	13,377.58	17	88	19	54	..	..	..	20	..	..	14
3	Lapchu Tea Estate PO	730.70	144	798	104	..	..	..	..	704	11	11	72
4	Peshok Tea Estate 3P	3,512.40	513	2,170	594	..	..	..	..	2,155	3	..	12
5	Bara Mungwa P.	566.44	94	755	62	414	254	63	18	..	..	..	6
6	Chota Mungwa 2P	502.59	66	347	62	245	93	9	..	..	..	..	..
7	Takling Khas-mahal P	567.80	113	648	114	491	40	114	..	..	..	..	3
8	Soriang Khas-mahal	505.33	160	899	161	777	47	59	..	..	..	..	16
9	Chogra Khas-mahal 2P	907.46	160	641	110	600	23	10	..	..	8	..	..
10	Kolbong Khas-mahal P	394.11	50	256	31	229	25	2	..	..	..	..	..
11	Rayak Khas-mahal	63.30	9	50	13	50	..	..	..	..	..	..	..
12	Lingding Khas-mahal	384.93	67	336	41	259	7	70	..	..	..	..	..
13	Tukdah Forest	1,871.00	148	659	81	..	..	..	..	459	14	33	153
14	Lopchu Khas-mahal	271.40	33	215	17	215	..	..	..	..	..	..	..
	Lopchu Bazar		17	100	16	38	20	1	..	11	28	..	2
15	Tukdah	789.47	261	1,217	13	946	248	9	..	..	..	..	14
16	Singringtam	320.80	80	419	72	352	36	31	..	..	..	..	..
17	Manedara	836.72	129	696	57	510	170	16	..	..	..	..	..
18	Tukdah Tea Estate 3P	1,638.03	350	1,703	288	..	..	..	..	1,511	21	17	154
19	Dawaipani	423.17	98	632	34	585	39	..	..	..	..	..	8
20	Senchal Forest	Included in J. L. No. 15 of Jore Bangalow P. S.											
21	Puhong Khas-mahal	641.14	133	916	282	622	245	..	1	..	..	..	48
22	Rongli Rangliot T. E. 2P Po (Rungi Roong)	811.93	235	1,161	52	..	..	..	..	1,047	16	13	85
23	Tukdah Cantonment	1893.23	37	236	78	..	4	85	..	1	6	9	131
	Hum Tukdah Khasmahal		68	268	83	48	18	109	..	25	5	..	63
	Mani Bazar Khas-mahal		23	80	32	17	5	14	..	11	5	..	28
24	Gielie T. E. P	4,892.00	277	1,462	294	..	..	..	..	1,329	9	15	109
25	Pumong T. E.	720.00	200	1,075	189	11	4	..	..	1,001	12	..	47
26	Mangpu Cinchona Plantation 10P.	37,651.51	1,201	5,910	1,094	7	5	..	..	5,705	10	6	177
	H, Rh, PO		16	86	12	72	7	..	..	5	..	..	2
	Rongchong Khas-mahal												
	Labdah Khas-mahal												
	Reshep Bazar Khasmahal												
	Namring T. E.		244	1,220	202	..	..	..	..	1,142	15	9	54
	Included in J. L. No. 24	Ditto	203	1,010	172	..	..	..	..	967	2	..	41
	Ginglam T. E.		497	2,467	335	2	..	..	..	2,376	10	1	78
	Tista Valley T. E.	Ditto	203	1,010	172	..	..	..	..	967	2	..	41
	Ginglam T. E.		497	2,467	335	2	..	..	..	2,376	10	1	78
Total (Entirely Rural)		76,022.04 acres or 118.78 sq. miles	6,195	31,329	5,225	7,118	1,337	612	19	20,232	365	127	1,519

T. E. denote Tea Estate.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/occupied Ward in acres	No. of houses	Popu- lation	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
KURSEONG SUBDIVISION													
6 P. S. Kurseong													
1	Cart Road	4,444.53	1,467	7,274	2,116	81	..	..	..	2,604	447	2,034	1,908
2	Chattakpur Forest	Included in J. L. No. 15 of Jore Bungalow P. S.	64	328	60	..	..	..	..	279	14	6	29
3	Dayalthong T. E. (Dilaram)	1,313.18	151	703	65	..	..	..	..	638	11	12	42
4	Maharani T. E. P	338.00	111	564	85	..	..	..	..	549	..	..	15
	Edenvale T. E.		26	108	7	..	..	..	..	100	4	..	4
5	Bamandhura Forest	Included in J. L. No. 15 of Jore Bungalow P. S.	21	110	36	..	..	..	..	95	2	..	13
6	Seopydhura T.E. 2P (Dilaram)	Included in J. L. No. 3.	80	333	86	..	..	..	..	275	..	..	58
	Paglabong Busty		27	98	26	43	..	..	..	12	7	..	36
7	Government locations	9.21	Uninhabited										
	Chaitapani T. E.		68	350	46	..	..	..	..	222	30	7	91
	Dhobi Jhora Forest		25	104	34	..	..	..	..	52	..	..	52
8	Singel T. E.	1,572.75	398	1,761	87	..	..	..	..	1,497	3	..	261
	Kharia Busty		68	330	78	828	2	..	..	..	..	..	..
	Montevait T. E.		95	391	66	..	..	..	..	289	25	..	77
9	Ambootia T. E.	2,207.26	463	2,148	527	..	..	..	..	2,082	20	..	96
10	Kurseong St. Mary's Busty	1,765.85	130	876	414	1	..	..	18	51	59	37	710
	Dow Hill	(Covers part of Kurseong Municipal area)	7	32	16	..	..	..	..	..	..	..	32
	Victoria		53	216	108	..	..	..	..	7	5	1	203
	Dhobi Khola		26	123	44	..	..	..	..	48	14	12	49
	Spring Side T. E.		94	370	12	..	..	..	..	356	5	2	7
11	Castleton T. E. (Now Gaurisankar)	677.80	137	644	129	..	..	..	..	577	5	..	62
12	Makaihari T. E.	761.33	91	410	57	..	..	..	..	386	1	..	23
13	Kodabarir T. E.	692.75	69	320	35	..	..	..	..	315	..	..	5
14	Longview T. E. P	1,685.01	433	1,753	253	..	..	..	..	1,649	2	5	97
15	Kalabarir Chhat	62.24	Uninhabited										
16	Kalabari T. E.	232.80	174	671	269	..	..	..	..	45	47	..	579
17	Punkhabari 3P	71.37				..	..	..	..	..	..	..	..
18	Baman Pokhri Forest	1,360.00				..	..	..	..	77	..	..	..
19	Pelku	293.79	183	605	52	Uninhabited							
20	Rakti Forest	188.82											
21	Tarabari	250.69											
22	Garidhura T.E. (Maironbari)	974.66	183	605	52	..	..	..	..	571	9	7	18
23	Garidhurar Pipli	485.51	145.05	1,644.21	..	Uninhabited							
24	Garidhurar Chhat	31.30											
25	Uttar Garidhura	7.33											
26	Mouri Pakhar	145.05	1,644.21	..	..	Uninhabited							
27	Jamadar Bhita (Falodi) T. E.	1,644.21											

T. E. denotes Tea Estate.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
P. S. Kurseong—contd.													
28	Balasan Forest	1,738.54				Uninhabited							
29	Sapti Guri Khela Ghar T. E.	201.81	47	186	2	..	..	..	..	186	..	..	..
30	Pairi Kumari	171.30	11	42	3	1	..	34	..	3	..	..	4
31	Simul Bari T. E.	1,147.20	141	477	100	..	..	..	..	453	1	..	28
32	Jabarhat T. E.	418.77	29	80	28	..	..	..	..	78	..	..	2
33	Bara Adalpur	554.08				Uninhabited							
34	Kanyan	108.41	5	20	1	12	5	2	..	..	..	..	1
35	Sukna	21.03	1	5	1	..	..	..	..	5	..	..	..
36	Sukna Forest	3,832.00	47	150	35	..	..	..	..	130	13	..	7
37	Nijkaman	972.75				Uninhabited							
38	Selim	318.67	61	326	22	..	..	..	..	269	57	..	..
39	Lama Gumba Forest	508.43				Uninhabited							
40	Selim Hill T. E.	2,160.82	61	218	28	..	..	..	..	197	2	6	13
41	Morichbong	2,110.04	41	166	8	..	..	..	..	162	4	..	..
42	Rohini T. E. P.	1,118.65	384	1,461	195	..	..	..	..	1,291	7	68	100
43	Shibakhola T. E. (Gidhapahar T. E.)	694.33	86	419	114	..	..	221	..	175	4	1	18
44	Giddapahar P.	68.27	162	873	170	..	..	..	..	38	..	49	786
45	Bara Shibakhola Forest	417.00				Uninhabited							
46	Mahaldaram Forest	7931.00	18	160	29	..	..	..	..	160	..	..	..
	Mohan Majhwa T. E.		32	156	51	..	..	..	..	150	..	..	6
	United Majhwa		35	203	49	1	..	..	..	182	4	..	16
47	Jungpana T. E.	256.93	123	560	56	..	..	..	..	551	..	..	9
48	Sittong Khasmahal (Mungpoo)	Area included in J. L. No 26 of Rangli Rangliot P. S.	614	3,875	670	3,522	176	33	..	55	48	..	41
	Sittong Cinchona Plantation		127	573	125	..	..	..	..	570	..	..	3
49	Mahaldaram T. E.	983.82	52	219	42	..	..	..	..	212	2	..	5
50	Malotar T. E. P.	2,150.00	117	599	129	..	..	..	..	552	18	..	29
51	Mahanadi (Ghoomti) T. E. 2P. PO	827.24	213	1,040	108	..	..	..	..	871	62	27	80
52	Lizziepur T. E.	1,666.02	156	783	79	..	..	..	..	777	..	..	6
53	Sibakhola Forest (Pagla Jhora) Ghayabari Busty	423.00	3	17	..	..	..	..	..	17	..	..	..
			151	723	77	68	..	..	..	241	36	86	302
54	Gayabari T. E. P, PO	654.87	68	346	78	..	..	..	..	325	3	11	7
55	Tindharia T. E. 4P	1,016.66	96	392	75	..	..	..	..	361	16	..	15
56	Gitingy T. E.	500.00	159	609	39	..	..	..	..	593	16	..	..
57	Nurbong T. E.	1,119.00	142	512	42	..	..	..	..	481	7	4	20
58	Chunbhati P	28.94	106	471	37	..	..	..	..	411	31	..	29
59	Sepoydhura T. E.	742.49				Uninhabited							
60	Mahanadi Forest	4,645.00	1	8	1	..	..	..	..	6	..	..	..
61	Chocklong Forest	9,038.00	5	18	..	..	..	..	..	16	..	..	..

T. E. denotes Tea Estate.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/ Ward in acres	No. of occupied houses	Popu- lation	No. of literate	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14

6 P. S. Kurseong—concl'd.

62	Latpanchar Forest	3,368.00	67	119	57	111	8
63	Sitong Forest	7,882.00	12	55	15	..	..	..	..	55	..	..	..
64	Sitong 2P Gola Forest		467	1,298	459	..	..	..	..	1,233	35	..	30
						Uninhabited							

Kurseong Municipality
8P, 4S, 4H, 3D,
PO, MA.

Ward No. I	.	.	402	2,282	1,149	34	..	..	8	262	440	266	1,272
Ward No. II	.	.	531	2,836	1,356	7	8	..	10	459	111	350	1,891
Ward No. III	.	.	460	1,507	554	7	..	..	5	141	166	272	916
Ward No. IV	.	.	190	1,476	619	..	..	..	..	347	419	141	569
Ward No. V	.	.	477	2,254	978	..	..	..	..	163	479	470	1,142
Ward No. VI	.	.	299	1,364	555	..	..	..	..	454	127	47	736
Total	.		2,419	11,719	5,211	48	8	..	23	1,826	1,742	1,546	6,526
Rural	.		8,330	37,858	7,659	4,047	183	290	18	23,847	1,076	2,370	6,027
Urban	.		2,419	11,719	5,211	48	8	..	23	1,826	1,742	1,546	6,526
Grand Total	.	81,010.51 acres or 126.58 sq. miles	10,749	49,577	12,870	4,095	191	290	41	25,673	2,818	3,916	12,553

7 P. S. Mirik

1	Bukim T. E. (Tharbu)	3,480.11	736	3,768	689	..	..	..	..	3,377	141	..	250
2	Okaity T. E. (Rongdong), P	1,086.00	155	1,272	253	..	..	..	..	1,260	9	..	3
3	Kuhein Forest	505.00	14	72	8	..	..	..	..	72	..	..	..
4	Phuguri Forest	1,589.64	352	1,656	104	..	..	..	..	1,606	16	..	34
5	Sourini Basti 3P.	1,126.05	293	1,420	317	919	..	..	..	393	37	..	71
6	Mirik Khas-mahal 2P, Rh, PO	2,006.79	365	1,993	272	1,725	..	80	..	40	33	..	115
7	Marma T. E. P	1,720.11	134	1,080	103	58	..	..	..	920	6	4	92
8	Majua Forest	1,640.00	14	72	6	..	..	..	..	72	..	..	..
9	Singbulli T. E. P	929.51	267	1,184	173	..	..	..	..	1,153	7	..	24
10	Tingling T. E.	1,552.00	146	624	157	..	..	..	..	574	7	..	43
11	Patong T. E.	1,460.00	205	888	58	..	..	..	..	847	9	..	32
12	Manjha Forest (Panighata F. R.)	3,949.98	78	386	23	..	..	..	..	367	..	2	17
13	New Falodi T. E. (Ghyabari)	3,005.00	433	1,721	313	..	..	..	..	1,579	32	..	110
Total (Entirely Rural)	..	24,059.10	3,192	16,136	2,476	2,702	..	80	..	12,260	297	6	791
		acres or 37.58 sq. miles											

T. E. denotes Tea Estate.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
SILIGURI SUB-DIVISION													
8 P. S. Siliguri													
1	Sitong Forest	959.00	98	478	76	..	..	..	..	348	50	10	70
2	Sivoke Hill Forest PO	3,657.00	76	362	100	..	..	..	..	13	28	122	199
3	Sivoke Forest	3,448.00	44	134	30	..	..	12	..	58	16	9	39
4	Champashari Forest	2,733.00	62	131	23	..	..	..	..	131	..	..	..
5	Mahanadi Forest	2,523.00	12	49	4	..	..	..	..	49	..	..	..
6	Sukna Part I	61.53	107	658	96	..	..	..	..	633	4	8	13
7	Sukna Forest	822.00	48	195	46	21	8	..	..	4	33	79	50
8	Kamalabarir Chhat	62.57	94	659	59	1	3	..	..	639	..	1	15
9	Khoklong Chhat	90.80											
10	Paharu	172.59											
11	Chota Adalpur	191.79	11	42	..	13	29	..	..	..	..	..	..
12	Khoklong	294.63	24	146	..	41	96	3	..	..	5	..	1
13	Bara Adalpur Part II	453.07	45	143	..	..	..	..	..	143	..	..	..
14	Khaprul	1,111.25	77	295	3	61	171	27	..	7	14	..	15
15	Patanjharer Chhat	35.06	146	458	5	..	..	..	..	451	..	..	7
16	Fulbari Chhat	73.01											
17	Baunibhitar Chhat	60.39											
18	Dhemal	457.10	19	97	1	19	75	..	..	..	..	..	3
19	Patan Chhat	176.37	19	97	1	19	75	..	..	..	..	..	3
20	Patan	123.84											
21	Fulbari Pataner Chhat	163.38											
22	Ruhinir Chhat	44.84	68	311	8	125	163	..	..	6	7	1	9
23	Khopalasi P	421.14											
24	Jhauguri	217.85											
25	Jhauguri Chhat	190.63	612	1,048	272	..	5	6	1	997	3	..	36
26	Rajpairi	519.31	63	272	13	31	213	..	..	12	4	..	12
27	Mothibari	46.80	8	34	7	..	..	..	..	34	..	..	..
28	Chamtaguri Chhat	477.46	78	309	27	81	217	6	..	2	..	..	3
29	Panchanai	334.09	37	175	20	19	119	5	..	..	..	8	24
30	Nunu Bairagi	257.90	33	169	5	..	148	14	..	..	6	..	1
31	Nunu Bairagi Chhat	183.55	Included in J. L. No. 6										
32	Mohargong T. E.	2,114.50	312	995	98	..	14	..	..	956	11	5	9
33	Purba Karaibarir Chhat	122.54	31	165	13	9	154	..	..	1	..	..	1
34	Galmakhari	156.38	11	53	15	5	41	1	..	3	..	..	3
35	Shalbari Chhat	17.14	Uninhabited										
36	Champashari P	245.57	22	129	16	28	97	..	..	3	..	..	1
37	Duramarir Chhat	41.67	410	504	65	28	5	..	..	456	8	2	5
38	Champashari Chhat	17.67											
39	Karaibarir	391.68											
40	Dariagramer Chhat	19.25	6	39	7	6	33	..	..	..	..	..	..
41	Shishabari	314.14	12	58	2	3	55	..	..	..	..	..	..
42	Rupan Chhat	5.75	..	..	Uninhabited								
43	Palash	546.84	43	208	17	47	155	..	..	3	..	..	3
44	Kalkut	359.65	50	272	22	41	208	2	..	14	..	..	7
45	Kalabari	192.18	14	86	7	5	73	..	8	..	..	..	..
46	Malahar	87.07	13	69	5	57	12	..	..	..	..	..	..
47	Mahismari	542.28	37	162	11	88	54	..	..	17	..	..	3
48	Mahishmari	159.64	136	484	76	..	..	..	..	475	..	..	9
	Jadubhitar Chhat	159.64	22	123	15	77	38	..	..	4	4	..	..

T. E. denotes Tea Estate.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/ Ward in acres	No. of occupied houses	Popu- lation	No. of literates	I	II	III	IV	V	VI	VII	VIII	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
8 P. S. Siliguri—contd.														
49	Damragayer Chhat P	67.98	301	918	136	..	..	..	..	865	2	26	27
50	Mahatram 2P	349.24	17	78	3	31	47	..	..	..	..	..	..
51	Udaysingh	634.31	24	120	5	23	93	..	..	..	..	1	3
52	Shalbari Chhat Part I	16.90	33	Uninhabited										
53	Dhukuria P	597.51		289	33	28	254	..	..	1	3	..	3
54	Nichitpur	414.96		included in J. L. No. 55										
55	Bania Khari	425.25		128	6	31	80	..	..	13	..	..	4
	Baniakhari			431	165	..	..	..	..	430	..	..	1
56	Guria P			86	208	26	71	120	12	5
57	Nimai			46	215	34	72	136	3	4
58	Jugi Bhita	515.26	140	259	33	103	144	1	..	..	..	..	11
59	Panchkulguri	448.61	30	124	10	46	69	5	..	..	..	3	1
60	Gouri	265.58	16	included in J. L. No. 15										
61	Pataner Chhat	114.42		Ditto										
62	Lalsara Chhat	76.42		Uninhabited										
63	Dumriguri Chhat	148.20		74	4	25	..	49	..	..	..	..	7
64	Tarabari	102.32	11	64	5	20	35	1	..	1	..	..	2
65	Tarabarir Chhat	56.00	5	19	..	..	17	..	..	..	..	..	1
66	Pantapari Forest	875.00	78	included in J. L. No. 67										
67	Bara Bhita	595.89		373	22	109	226	3	1	28	5	..	1	
	Barabhita			64	1	..	..	..	..	57	2	4	..
68	Kamalpur			49	174	14	174	2
69	Mayaram			56	244	22	69	172	2	..	1
70	Paschim Karai- barir Chhat	26.94		Uninhabited										
71	Batlabari	355.38	47	279	25	118	161	..	..	..	..	..	..
72	Baunibhita	270.90	17	90	3	48	42	..	..	..	..	..	..
73	Lochka	185.45	31	177	20	85	92	..	..	..	..	..	..
74	Bataliguri	216.45	14	90	3	26	59	1	..	1	3	..	..
75	Rangia P	743.04	77	377	63	192	142	20	..	1	2	..	20	
76	Nongtichhara	213.39	26	157	13	110	10	37	..	..	..	..	..
77	Tari	405.15	39	212	17	120	5	78	..	4	..	..	5
78	Jitu	535.05	135	153	12	84	8	61	..	..	..	..	..
	Jitu			405	26	..	..	..	..	391	..	..	14
79	Bairatishal			68	321	32	114	57	98	..	1	21	20	2
80	Rup Sing			45	226	65	34	188	1	..	1	2
81	Dumriguri 2P	667.22	49	272	19	56	209	..	..	5	2	..	..
82	Uttar Bagdogra P	402.64	256	929	204	101	142	..	..	175	231	102	178
83	Bhujiabani	624.80	94	343	59	42	27	..	..	200	4	43	27
84	Dakshin Bag- dogra	362.31	53	237	20	91	56	..	..	51	8	29	2
85	Putimari	455.56	6	27	7	22	..	..	..	5	..	..	..
86	Bhujiabanir Chhat	45.30	26	113	5	43	60	10	..	..	..	..	..
87	Lalman P	840.92	115	575	134	177	359	17	..	1	..	..	21
88	Bharat Sing	203.64	20	114	18	59	54	..	..	..	..	..	1
89	Raja Jhar P	565.90	66	362	39	160	202	..	..	..	..	..	..
90	Shiabhita P	606.22	45	355	26	208	152	..	..	..	..	..	..
91	Rangapani	564.74	49	229	20	123	95	..	..	..	2	..	9
92	Ranidanga P	570.51	85	496	94	142	273	..	..	..	..	..	81
93	Pelku	299.97	42	187	5	66	120	..	..	..	..	..	1
94	Thiknikata P	306.93	41	201	5	56	141	2	..	..	..	..	2
95	Kawakhari P	199.69	29	139	17	27	49	63	..	..	..	..	..
96	Bara Mohan Sing 2P	717.45	135	606	24	255	113	209	2	3	7	..	17	
97	Kalam	482.30	14	67	2	10	..	57	..	..	..	..	..
98	Kauakhali	450.92	38	160	21	21	..	139	..	..	..	..	..
99	Patiram	485.48	49	212	8	..	201	8	..	..	..	..	3
100	Tomba	359.13	7	43	7	..	39	3	..	..	..	..	1

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII											
1	2	3	4	5	6	7	8	9	10	11	12	13	14											
8	P. S. Siliguri—contd.																							
101	Mathapari .	509.36	130	541	178	47	..	..	14	172	170	62	76									
102	Matigara Hat P	71.12	98	446	142	6	..	1	..	74	190	4	171											
103	Gourcharan .	579.42	{ 31	133	74	5	86	10	..	16	12	..	4											
	Gour Charan .			52	178	16	..	9	7	..	150	7	5	..										
104	Baragharia .	715.12	83	257	17	..	174	..	..	47	..	25	11									
105	Daknikata .	666.21	20	75	5	..	68	..	..	7	..	..	..								
106	Foutsingher Chhat	57.73	123	416	29	..	..	..	..	414	..	2	..							
107	Mandlaguri .	527.09	47	278	52	72	172	1	..	5	5	6	17											
108	Ujanu P .	553.31	{ 365	966	434	..	..	..	..	137	23	706	90							
	Ujanu .			125	390	83	368	1	14	7										
109	Ghokma .	177.17	{	120	461	31	..	..	..	438	1	1	11								
110	Shibnath Das .	695.00																						
111	Shiliguri .	446.97												Included in Urban Area										
112	Kholaising .	864.33																						
113	Gazal Sing .	1,004.02																						
114	Purba Pashu-nath Barua	8.29	Uninhabited																					
115	Paschim Pashu-nath Barua	3.15	{	120	461	31	..	..	..	438	1	1	11								
116	Mechi Tea Estate (a)	450.68																						
117	Lohagar (a)	517.34												Uninhabited										
118	Lohagar Forest (a)	578.00																						
119	Manjha (a)	717.04												33	127	44	112	5	..	10
120	Jangla Mech (a)	60.11	75	240	18	..	..	..	..	239	..	..	1					
121	Rangmohan (a)	60.55	Included in J. L. No. 128																					
122	Bara Chenga (b)	768.41	11	46	23	..	..	..	..	28	..	4	14							
123	Marapur (b)	206.21	51	176	27	..	..	..	..	176	..	..	..								
124	Chota Chenga (b)	918.62	Included in J. L. No. 27																					
125	Belgachhi (b)	72.83	268	843	55	..	..	..	..	774	29	8	32							
126	Udiarip (b)	553.80	{	173	752	62	..	..	..	712	3	15	22								
127	Kadma (b)	196.20																						
128	Panighata (b)	2,285.66																						
129	M. M. Terai (b)	569.10																						
130	Ord. Terai Tea Estate (b)	443.38												Included in J. L. No. 126										
131	Tepra Bhela .	55.92	{	281	959	96	..	..	..	921	9	7	22								
132	Trihania Tea Estate (b)	507.22																						
133	Pantabari Forest (b)	1,551.00												Included in J. L. No. 66										
134	Dalkajhar Forest (a)	5,957.00												40	191	17	93	7	38	..	50	3
135	Tepu Chamaru (a)	240.01												Included in J. L. No. 137										
136	Omi (a)	243.23	{											30	142	5	68	70	4	
137	Gaziram (a)	517.28		201	768	69	..	13	659	5	37											54
138	Birsing (a)	651.93		76	340	4	151	156	22											11
139	Huchai Mallik (a)	419.51		42	174	16	91	64	10	..	7											2
140	Deoan Bhitari Chhat (a)	17.60		Uninhabited																				
141	Jamidarguri (a)	283.04	{	41	195	18	80	100	..	..	12	..	3									
	Jamidarguri .													16	62	8	8	54	
142	Jamidarguri Chhat (a)	77.60												Uninhabited										
143	Bhelu (a)	410.74												14	67	9	67
144	Lohasing (a)	495.99												48	136	9	127	4	..	5
145	Shirshia Cha Bagan (a)	227.85	Included in J. L. No. 65 of Kharibari P.S.																					
146	Nipania (a)	438.27	Included in J. L. No. 131 of Kharibari P.S.																					
147	Sebdela (a)	445.51	Uninhabited																					
148	Mahasing (a) P.	353.97	49	206	15	86	99	18	..	2	..	..	1									
149	Nandalal (a) 2P	352.20	49	234	5	111	88	24	..	8	..	..	3									
150	Deomani (a)	170.80	202	617	41	..	..	..	..	598	6	..	13							
151	Lakshman (a)	52.39																						
152	Lakshman Chhat (a)	63.61																						

(a)—Transferred from Nazalbari to Siliguri Police Station under Govt. Notification No. 1479 Pol. dated the 30th March, 1927.

(b)—Transferred from Nazalbari Police Station to Siliguri Police Station.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14

8 P. S. Siliguri—conold.

153	Atal (a)	774.88	278	929	92	5	..	..	9	872	8	6	29
154	Mangalsing (a) P	353.97	61	254	29	79	50	..	2	47	27	42	7
155	Barajharu (a)	339.58	69	275	22	88	152	4	..	16	5	..	10
156	Ghusuru (a)	716.43	{	Included in J. L. No. 153									
	Ghusuru .			163	641	25	..	..	..	608	..	9	24
157	Raghuram (a)	358.70	26	136	4	35	78	..	..	19	3	..	1
158	Nimubhitar Chhat (a)	327.22	60	256	12	..	..	..	..	251	..	1	4
159	Bair Bhita (a)	138.78	9	39	7	23	16	..	..	..	..	..	..
160	Raghuramer Chhat (a)	115.50	Uninhabited										
161	Bhakatram (a)	157.11	18	68	9	46	18	4	..	..	..	..	..
162	Damdama (a)	674.21	{	Included in J. L. No. 98 of Kharibari P. S.									
163	Grammanir Chhat (a)	49.75											
164	Grammani (a)	64.68											
165	Mingharar Chhat (a)	52.13											
166	Minghara (a)	148.43											

Siliguri Municipality

3P, 3S, H, 2D.

4Rh, 3PO, M.A.

Ward No. I	272	1,473	984	41	21	..	3	278	518	170	442	
Ward No. II	418	2,245	901	31	18	..	4	268	792	282	850	
Ward No. III	158	903	553	12	..	..	..	190	334	118	249
Ward No. IV	1,004	3,868	2,491	..	5	..	54	252	1,722	113	1,722	
Ward No. V	365	1,859	915	5	9	..	5	286	609	80	775	
Ward No. VI	207	1,101	673	..	..	..	..	69	443	2	587
Ward No. VII	253	1,052	670	6	..	..	13	291	172	61	509
Ward No. VIII	872	4,638	1,646	13	..	21	19	646	1,941	541	1,457	
Ward No. IX	369	1,973	636	..	..	..	..	229	841	125	778
Ward No. X	482	2,042	975	..	..	..	..	159	99	1,164	620
Ward No. XI	313	1,560	567	10	25	8	..	374	392	376	375	
Ward No. XII	280	1,447	508	7	97	4	..	80	221	525	513	
Ward No. XIII	217	1,272	502	..	92	..	..	173	377	184	446
Ward No. XIV	338	2,813	852	30	52	..	5	344	844	498	1,040	
Ward No. XV	416	2,536	1,109	1	..	..	9	248	736	271	1,271
Ward No. XVI	126	747	368	53	10	..	1	216	248	38	181	
Ward No. XVII	98	673	216	60	22	..	..	235	127	1	228
Ward No. XVIII	51	278	204	3	13	..	..	31	67	25	139
Total	6,239	32,480	14,770	272	364	33	113	4,369	10,573	4,574	12,182	
Rural	9,678	35,800	4,626	5,315	8,379	1,080	37	16,796	1,038	1,445	1,710	
Urban	6,239	32,480	14,770	272	364	33	113	4,369	10,573	4,574	12,182	
Grand Total	79,587.10 acres or 124.35 sq. miles	15,917	68,280	19,396	5,587	8,743	1,113	150	21,165	11,611	6,019	13,892

9 P. S. Kharibari

1	Antaram	483.92	22	98	1	71	23	..	..	..	..	..	4
2	Bejarur Chhat	7.89	24	109	19	31	74	1	..	..	..	..	3
3	Gandagol	390.84	41	207	18	56	136	8	..	..	..	..	7
4	Saheburam	583.56	{	35	181	7	1	166	14	..	..	..	..
	Saheburam			58	196	11	..	..	..	189	..	..	7
5	Jibansing	415.50	19	79	1	70	9	..	..	..	..	..	..
6	Bhulka	587.43	35	183	5	54	129	..	..	..	..	..	..
7	Ramdhan	540.74	2	10	..	10	..	..	..	..	..	..	..
8	Chayansing	625.06	58	356	21	224	132	..	..	..	..	..	..
9	Shyamdhan	378.01	51	245	29	156	48	..	..	7	5	6	23

(a)—Transferred from Naxalbari Police Station to Siliguri Police Station.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
9	P. S. Kharibari—contd.												
10	Bhogbhita P	631.91	38	169	5	109	40	20	..	..	..	..	..
	Bhogbhita		19	50	1	..	..	..	..	50	..	..	..
11	Budhsing	210.15	34	139	13	121	18	..	..	..	..	..	..
12	Fulbari Chhat	36.86	3	14	2	..	14	..	..	..	..	..	..
13	Fulbari	862.66	17	98	1	90	8	..	..	..	..	..	..
	Fulbari T. E.		227	796	98	3	15	..	..	727	24	15	12
14	Manasa	184.67	14	48	3	39	9	..	..	..	..	..	..
15	Guabari	227.24	25	106	1	78	28	..	..	..	..	..	..
16	Dudha	330.37	15	104	12	97	7	..	..	..	..	..	..
17	Shalbari	362.71	9	38	8	20	18	..	..	..	..	..	..
	Shalbari		Included in J. L. No. 51										
18	Deburam	473.19	41	189	21	132	42	15	..	..	..	..	..
19	Bagha	330.60	21	76	3	43	32	..	..	..	..	..	1
	Bagha		Included in J. L. No. 51										
20	Dohaguri	665.78	54	268	15	177	59	25	..	3	..	..	4
21	Kelabari	484.12	53	257	18	94	100	..	..	31	15	..	17
22	Balahijhora	305.40	31	136	13	50	83	3	..	..	..	..	..
23	Badora	127.25	9	29	1	29	..	..	..	..	..	..	..
24	Jamatulla P	107.93	12	51	4	51	..	..	..	..	..	..	..
25	Alokjhari P	346.00	57	240	10	8	147	22	63	..	..	..	..
26	Barsadbhita	481.72	86	413	91	174	43	5	..	2	31	90	68
27	Kungarpur	361.14	26	150	16	95	50	..	..	..	..	..	5
28	Chunilal	429.35	22	116	9	93	21	1	..	..	..	..	1
29	Maynaguri	804.83	7	30	3	30	..	..	..	..	..	..	..
30	Tari P	598.56	71	247	48	110	120	7	..	2	..	..	8
31	Chiku	542.70	23	107	10	39	64	..	..	..	..	..	4
32	Khopalasi	450.97	20	107	25	21	80	..	..	..	..	..	6
33	Duba	323.43	24	134	21	57	71	4	..	..	..	..	2
34	Bilakshu	643.25	29	116	13	74	40	..	..	..	..	..	2
35	Bairagi P	571.20	56	221	15	120	52	..	..	..	..	..	49
36	Rangmuni	277.20	16	66	17	18	23	4	..	..	..	..	21
37	Gayen P	582.65	78	352	33	245	80	7	..	7	..	..	13
38	Debiganja P	626.52	65	310	16	170	91	37	..	8	..	..	4
39	Bhajanpur P	582.98	66	290	14	180	85	9	..	..	..	16	..
40	Chekarmari	417.51	15	74	2	27	45	1	1	..	..	..	..
41	Banchhabhita	355.96	16	70	2	55	7	5	..	..	..	..	3
42	Katia P	408.94	41	160	41	96	57	6	..	1	..	..	..
43	Khuniapukhari 2P	508.21	57	218	25	121	69	5	..	2	..	..	21
44	Gadhira	555.60	8	32	1	7	24	..	..	..	..	..	1
45	Pataram	778.51	82	395	42	237	128	12	..	3	..	..	15
46	Kishordoba	723.34	82	385	65	205	140	10	..	2	3	..	25
47	Dhupibhita P	630.77	96	532	80	303	137	47	..	..	17	..	28
48	Kharibari S, Rh, PO	620.64	202	770	16	184	88	37	37	63	202	..	159
49	Jagir	563.96	57	286	49	91	139	6	34	1	..	..	15
50	Arjanmal	648.09	31	121	12	100	21	..	..	..	..	..	..
	Arjanmal		91	319	73	..	..	..	..	282	7	3	27
51	Chuchurmuchur P	669.80	165	485	10	..	..	..	..	484	..	..	1
52	Bagulahagi	668.25	52	292	13	256	33	..	..	..	..	..	3
	Bagulahagi		Included in J. L. No. 53										
53	Sonachalani	275.31	123	463	84	..	..	..	..	452	5	..	6
54	Bhatagachh	689.67	27	149	5	145	..	..	..	..	..	..	4
	Bhatagachh		Included in J. L. No. 53										
55	Meohi Forest (a)	3,012.00	14	54	5	..	..	..	..	52	2	..	..
56	Mir Janglar Chhat (b)	125.57	52	217	9	129	62	16	..	..	..	..	10
57	Surajbarer Chhat (b)	62.55											
58	Amar Sing (b)	27.26	52	217	9	129	62	16	..	..	..	..	10
59	Siubar (b)	448.93											

T. E. denotes Tea Estate.

(a)—Transferred from Naxalbari Police Station vide Govt. Notification No. 1479 Pol., dated the 30th March 1927.

(b)—Transferred from Naxalbari Police Station to Kharibari Police Station.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
9P.S. Kharibari—contd.													
60	Chhotaganja (b)	43.75	37	175	11	79	94	..	..	..	..	..	2
61	Chhotaganjer Chhat (b)	62.79			Uninhabited								
62	Jhabar Chhat (a)	24.18	60	203	31	..	..	..	..	197	..	..	6
63	Mir Jangla (a)	481.56	17	61	2	18	39	..	..	4	..	..	..
64	Dhanibani (a)	57.07			Included in mouza Sahaburam(2), J. L. No. 4								
65	Dhanibanir Chhat (a)	136.86	64	254	30	..	..	..	..	238	..	4	12
66	Pataram (a)	262.84	45	196	10	16	166	1	3	10	..	..	..
67	Surajbar (a)	497.49	30	101	2	85	16	..	..	..	..	..	..
68	Surajbar Forest (a)	99.00			Uninhabited								
69	Bara Maniram (a) P	1,048.25	120	515	39	157	208	32	20	..	16	..	22
70	Kilaram (a)	474.65	24	93	..	46	47	..	..	..	..	..	..
71	Ketugabur (a)	383.79	63	320	25	165	141	3	..	..	..	..	11
72	Kamala (a)	517.21	14	78	17	22	52	..	..	..	..	..	4
73	Budhkaran (a)P	577.49	68	318	47	105	184	6	7	1	..	..	15
74	Fakna (a)	255.66	49	219	13	90	117	..	..	..	3	..	9
75	Mudirjangal (a)	382.19			Included in J. L. No. 62								
76	Satbhaitya (a)	528.55			Included in J. L. No. 153 of Siliguri P. S.								
77	Geni (a)	582.99	111	518	56	131	258	6	..	19	69	..	35
	Geni				Included in J. L. No. 79								
78	Hodobhitar Chhat (a)	532.74			Included in J. L. No. 75								
79	Uttamchand (a)	185.44	112	316	9	..	..	..	..	314	..	..	2
80	Bhimram (a)	717.27	118	587	68	97	354	6	..	58	25	5	42
81	Nakshalbari (a)	39.79	268	1,352	283	41	14	50	7	111	620	198	311
	H, Rh, PO												
	Nakshalbari		53	251	5	105	146	..	..	..	..	..	..
82	Dayaram (b)	475.06	20	71	3	63	..	..	..	..	4	..	4
83	Nehal (b)	260.38	20	105	5	34	65	..	..	..	..	..	6
84	Chhota Moniram (b) P	709.55	66	258	13	81	160	..	..	..	..	..	17
85	Dhdkna (b) P	573.87	82	302	23	83	200	5	..	..	3	..	11
86	Madan (a)	107.24	10	56	6	18	38	..	..	..	..	..	..
87	Ramdhan (a)	586.35	81	339	27	69	240	20	..	2	6	..	2
88	Tukriajhar Forest (a)	1,389.00	15	36	9	..	..	..	..	23	..	..	13
89	Manjaya (a)	172.84	11	41	4	26	6	4	..	..	..	..	5
90	Panthabari (a)	473.66	45	207	24	173	34	..	..	..	..	..	..
91	Jorpakri (a)	191.93	12	61	2	45	9	7	..	..	..	..	..
92	Badalbhitia (a)	477.04	39	199	33	104	89	..	..	..	..	..	6
93	Dangarbhitia (a)	684.03	102	501	36	486	..	..	..	..	15	..	..
94	Subal (a)	359.17	18	80	1	30	50	..	..	..	..	..	..
95	Rangali (a)	483.72	68	332	15	210	84	32	..	..	..	..	6
96	Singbhita (a)	443.06	16	81	5	65	16	..	..	..	..	..	..
	Singbhita				Included in J. L. No. 79								
97	Uttam Chander Chhat (a)	1,129.36	162	563	40	..	..	..	..	547	..	..	16
98	Tharubhitia (a)	369.29											
99	Dagdhu (a)	248.09	631	2,267	69	..	..	..	..	2,184	3	34	46
100	Dakua (a)	423.76	30	151	9	..	140	..	9	..	..	..	2
101	Dhulia (a) P	677.54	81	380	17	5	321	3	43	..	..	..	8
102	Duliar Chhat (a)	12.63			Included in J. L. No. 98								
103	Jatru (a)	507.35	59	273	16	28	245	..	..	..	..	..	..
104	Buraganja (a)	733.89	41	193	10	184	9	..	..	..	..	..	..
105	Hatidoba (a)	803.46	78	341	11	311	22	7	..	..	..	..	1
106	Deambhitia (a)P	187.78	27	115	2	115	..	..	..	..	..	..	..
107	Subalbhitia (a)	471.53	38	167	14	163	..	3	..	..	..	..	1
108	Nazir (a)	163.67	10	47	1	39	8	..	..	..	..	..	..
Total (Entirely Rural)		50,173.79 acres or 78.40 sq. miles	5,869	24,876	2,249	8,685	6,739	512	224	6,076	1,075	371	1,194

(a) Transferred from Naxalbari Police Station to Kharibari Police Station.
(b) Transferred from Naxalbari Police Station.

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	
10 P. S. Phansidewa														
1	Mahideb . . .	354.48	69	322	Included in J. L. No. 150 of Siliguri P.S.									
2	Choupukuria P	619.84			5	189	129	4
3	Krishnapur Cha Bagan	88.64			Included in J. L. No. 150 of Siliguri P.S.									
4	Sannyasi Thaner Chhat	300.90	73	231	53	..	..	..	..	225	..	..	6
5	Sannyasithan .	80.08												
6	Jabarali .	268.52												
7	Jabarali Chhat .	122.41	110	339	32	..	..	..	..	304	2	26	7
8	Singi Jhora .	456.74												
9	Harising .	67.27	29	101	5	..	..	..	..	101	..	..	..
10	Harising Chhat	335.82												
11	Kadopani .	80.53												
12	Bhaishdubi .	72.00	477	1,557	206	..	..	..	..	1,547	2	..	8
13	Lohakaichi .	204.10												
14	Rangali .	228.98												
15	Bhisti .	264.37	27	127	..	50	51	..	..	90	..	1	..
16	Tepu Cha Bagan	292.21	170	569	98	..	..	..	..	569	..	..	23
17	Panaullar Chhat	41.30	91	397	Uninhabited		189	186	..	..	14	..	8
18	Halal .	907.78												
19	Banur Chhat .	75.43												
20	Bangru .	247.48	5	21	5	9	12	..	..	..	..	..	..
21	Dhemaler Chhat	141.55	14	51	Uninhabited		51	..	..	..	..	..	..
22	Bhubangurir Chhat	267.70												
23	Bhariadanga .	184.08	26	134	5	134	..	..	..	..	..	..	..
24	Bhariadangir Chhat	172.59												
25	Patharhirhira	513.24	36	188	2	188	..	..	..	..	..	..	..
26	Patharhirhirar Chhat	335.50												
27	Fakirdwip .	497.00	36	131	Uninhabited		131	..	..	..	..	..	..
28	Mohanlaler Chhat	135.29												
29	Sastugachh .	593.66	26	134	5	134	..	..	..	..	..	..	..
30	Tarabari .	225.75												
31	Gangaram Cha Bagan	932.67												
32	Madhab Bhita .	528.05	47	233	15	222	6	..	..	5	..	..	..
33	Tentulguri .	509.10	34	200	13	127	73	..	..	..	..	..	..
34	Kuchia P .	727.28	51	469	28	407	..	..	..	62	..	..	..
35	Dandra Jhar .	506.25	41	300	25	300	..	..	..	..	..	..	..
36	Kadu Bhita P .	800.78	33	180	7	180	..	..	..	..	..	..	..
37	Dhaknagaohh .	145.10	6	44	5	44	..	..	..	..	..	..	..
38	Dhambhita .	482.03	35	167	6	119	34	6	..	7	..	..	1
39	Foudigaohh .	482.06	31	142	7	84	55	..	..	..	..	..	3
40	Ambari P .	403.52	49	212	18	127	73	2	1	..	..	..	9
41	Molani .	509.02	68	300	24	127	160	..	..	7	..	..	6
42	Haribhita .	701.29	67	315	38	166	122	12	..	7	..	..	8
43	Farabari .	609.78	32	163	17	155	..	..	..	8	..	..	..
44	Haodabhita .	548.95	27	140	10	116	24	..	..	..	..	..	..
45	Thakurganja .	561.92	477	1,081	50	..	..	..	..	1,072	..	..	9
	Thakurganj P .		219	583	23	..	..	..	..	576	..	..	7
46	Jogibhita P .	818.67	19	88	12	56	32	..	..	..	..	..	..
47	Laohubhita P .	481.99	46	251	19	185	66	..	..	..	..	..	..
48	Fulbar P .		6	33	7	33	..	..	..	..	..	..	..
	Fulbar .	710.41	95	397	52	..	..	..	..	293	..	25	79
49	Churaman .	672.10	236	780	42	..	..	..	..	767	8	..	5
50	Bhalamanshi P .	565.35	17	136	75	26	6	..	..	..	..	7	97
51	Thuna .	339.35	2	9	3	..	..	..	..	9	..	..	..
52	Thunar Chhat .	25.68												
53	Baramala .	380.32	180	726	38	117	64	..	..	499	27	..	19
	Baramala .													
54	Bandirohhat .	245.06												
55	Bandi .	516.67	Included in J. L. No. 45											
56	Dalurchhat .	47.43	Ditto											
			Uninhabited											

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Population	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
10 P. S. Phansidewa—concl'd.													
57	Muktar Chhat	23.12			Included in J. L. No. 45								
58	Sangatrām P.	334.86	71	288	16	34	63	..	..	159	..	..	32
59	Nitubhitar-chhat	60.80	}		Included in J. L. No. 16								
60	Gongarammal-chhat	92.38											
61	Meherulla	289.29	133	657	40	68	115	..	..	454	13	..	7
62	Helakadam-chhat	64.97			Uninhabited								
63	Sarcargachher Chhat	252.60	97	309	21	..	..	..	..	289	1	3	16
64	Sarcargachh	229.26	56	281	21	135	120	9	..	17	..	..	..
65	Baraigachh	436.09	51	295	16	157	134	..	..	4	..	..	..
66	Raghunath-chhat	53.45			Uninhabited								
67	Abhiram	593.19	75	320	27	25	198	..	..	85	..	..	12
68	Turibhita P.	712.13	56	259	23	135	115	..	..	4	1	..	4
69	Tarbandha P.	579.59	77	381	15	164	210	..	..	7	..	..	..
70	Antugachh	630.34	82	402	36	120	147	1	..	117	2	..	15
71	Bhushi Bhita	542.33	36	199	17	140	53	4	..	..	..	..	2
72	Radha P.	850.61	66	340	25	141	191	..	..	..	..	..	8
73	Nirmal P.	697.12	52	256	12	163	82	..	..	3	..	..	8
74	Mahammad Baksa	645.81	48	255	12	163	84	..	..	2	..	..	6
75	Narayan P.	572.18	70	348	19	258	80	..	..	..	..	1	9
76	Kalaram	221.87	33	159	13	45	109	..	..	..	5	..	..
77	Bara Pathuram	771.34	88	535	16	153	370	..	..	..	..	..	12
78	Chhota Pathuram	504.85	38	184	11	60	124	..	..	..	..	..	..
79	Dwara Baksa P.	466.44	44	212	13	59	146	..	..	..	..	..	7
80	Rahamu	350.22	32	152	9	58	87	..	..	..	..	..	7
81	Laldas P.	433.96	46	242	12	140	80	14	..	2	..	..	6
82	Hatiram P.	535.05	61	283	8	77	165	38	..	..	..	..	3
83	Kashiram	541.73	85	398	31	193	159	31	..	3	..	..	12
84	Liusi Pukuri 3P	1,624.91	163	835	18	272	563	..	..	..	..	..	..
85	Hetmuri		51	250	25	75	175	..	..	..	..	..	..
	Hetmuri	797.27	58	229	20	..	..	..	..	229	..	..	..
86	Nembu Tari P.		51	254	31	141	93	1	..	7	5	..	7
	Nembu Tari	1,188.20	183	688	46	..	..	..	..	646	..	..	42
87	Kantibhita	532.83	58	249	12	166	58	10	4	..	..	..	11
88	Mahipal P.	526.97	98	489	22	181	261	4	..	18	15	..	10
89	Dhamnagachh	529.10	37	160	5	33	126	..	..	..	1	..	..
90	Kadmi	574.56	56	310	27	191	99	..	..	11	4	..	5
91	Sahananda	470.96	52	244	10	139	105	..	..	..	..	..	..
92	Rupandighi P.	497.84	28	147	8	32	106	6	..	..	..	..	3
93	Guabari	536.64	72	315	9	35	280	..	..	..	..	..	..
94	Bandargachh	529.13	204	871	167	89	301	21	..	128	190	8	134
Total (Entirely Rural)		40,720.01 acres or 63.62 sq. miles	5,579	23,319	1,861	7,447	6,217	166	5	8,490	276	71	677

KALIMPONG SUB-DIVISION

11 P. S. Kalimpong

1	Rangpo Forest	589.00	20	65	19	..	..	..	..	1	12	4	48
2	Mangcho Forest	697.00	2	13	..	..	..	..	..	..	..	..	13
3	Mansong Cinchona Plantation 2P	1,975.00	1,001	5,577	1,085	..	..	..	..	5,397	5	..	175
4	Kashone Khasmahal 5P	2,6967.76	231	1,143	154	732	356	42	..	4	..	..	9
5	Pedong Bazar D. I. F., P, H	8.00	124	430	178	3	..	..	1	35	100	..	291

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/ Ward in acres	No. of occupied houses	Popu- lation	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>11 P. S. Kalimpong—contd.</i>													
6	Pedong- Khas mahal P, PO	1,408.03	257	1,118	225	660	366	69	4	3	..	..	16
7	Kagay Khas- mahal and D. I. F., P, PO	1,844.76	213	1,255	334	934	237	16	..	37	..	..	31
8	Maria Khas- Mahal	721.26	64	323	97	227	80	9	..	..	..	..	1
9	Ladam Khas mahal 2P	2,834.95	253	1,293	210	1,076	180	13	..	..	..	..	24
10	Lingaaykha Khas- mahal	2,783.57	170	925	10	702	195	10	..	1	..	..	17
11	Lingaay Khas- mahal 4P	3,268.80	245	1,377	215	969	406	2	..	..	..	..	..
12	Rhenok Forest	2,346.00	1	7	1	..	..	..	..	6	..	..	1
13	Rasht Forest	1,801.00	..	..	..	Uninhabited	..	..	..	..	..	..	..
14	Kolbong Forest	1,602.00	..	..	..	Ditto	..	..	..	..	..	..	..
15	Lava Bazar D. I. F.	10.00	11	51	22	..	..	..	..	2	25	..	24
16	Lava Forest	2,293.00	18	123	26	102	..	..	..	20	..	..	1
17	Khampong Forest	1,517.00	..	..	..	Uninhabited	..	..	..	..	..	..	..
18	Rissisum Forest	615.00	2	10	2	..	..	3	..	6	..	..	1
19	Paktam Forest	1,385.00	1	3	1	..	..	..	..	3	..	..	..
20	Mayrong Forest PO	798.00	18	95	6	93	..	..	..	..	..	..	2
21	Sakiyong Khas- mahal	2,666.23	471	2,555	406	1,572	642	326	..	..	2	..	13
22	Paiengaon Khasmahal	1,255.00	44	224	20	164	..	9	..	26	2	..	23
23	Algarah Bazar D. I. F. P, PO	6.00	109	481	173	13	..	..	..	59	72	140	197
24	Icha Forest	646.00	2	9	1	..	..	..	..	..	..	..	9
25	Sangser Forest P	1,444.00	51	207	17	49	..	1	..	126	6	3	22
26	Bhalukhop Forest	2,115.00	49	189	14	..	..	..	..	170	..	..	19
27	Sangser Khas- mahal	2,685.38	390	1,887	12	1,265	603	17	..	1	..	..	1
28	Dalapohan Khasmahal P	1,080.82	249	1,257	194	688	461	..	16	40	..	..	52
	Dalapohan Forest		2	6	2	..	..	..	..	4	..	..	2
29	Paiyong Khas- mahal 2P	2,117.95	440	2,422	377	1,786	563	19	..	44	..	..	10
30	Santuk Khas- mahal 2P	2,338.04	281	1,412	179	1,205	205	2	..	..	..	..	..
31	Saihur Forest	2,171.00	..	..	..	Uninhabited	..	..	..	..	..	..	..
32	Chumang Forest	1,266.00	1	1	1	..	..	..	..	1	..	..	..
33	Gitbeong Khas- mahal 5P	2,607.11	132	787	139	602	168	8	..	..	2	..	7
34	Gitdubling Khas- mahal and D. I. F. Area P	3,165.98	306	1,165	79	924	31	205	..	..	3	..	2
35	Paygang Khas- mahal	652.33	62	397	74	310	85	..	..	..	..	..	2
36	Bokhim Forest	911.00	1	1	1	..	..	..	..	1	..	..	..
37	Kafir Forest	1,137.00	2	6	2	5	..	..	..	1	..	..	..
	Kaffergaon Khas- mahal 2P		37	182	6	145	37	..	..	..	..	..	..
38	Kankibong Khasmahal P	1,714.38	154	802	87	744	50	5	3	..	..	..	..
39	Palla Khas- mahal P	1,695.61	171	918	126	701	117	61	..	23	7	..	9
40	Lolay Khas- mahal P	1,718.15	212	1,244	72	1,180	45	..	11	..	..	..	8
41	Echa Khas- mahal 2P	1,530.72	354	1,952	332	1,068	579	11	..	15	41	..	238
42	Pudung Khas- mahal P	968.04	238	1,116	145	706	277	56	8	13	3	2	51



J. L. No.	Name of Village or Town/Ward	Area of Village or occupied Town/ Ward in acres	No. of houses	Popu- lation	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>11 P. S. Kalimpong—contd.</i>													
43	St. A. C. Homes	505.41	244	1,681	670	..	..	7	..	96	26	4	1,548
44	Sindibong Khas- mahal	1,949.97	417	2,222	391	877	349	634	..	102	69	34	157
45	Dungra Khas- mahal P	1,056.60	432	2,067	430	472	177	1,040	..	47	44	45	2.2
46	Bhalukhop Khas- mahal P	1,828.30	420	2,089	152	732	782	108	..	138	155	8	166
47	Mission Com- pound (Muni- cipality)	72.73	Included in Urban Area										
48	Kalimpong Dam- sang Forest P	460.00	23	121	3	108	..	..	..	10	..	..	3
49	Mangwa Forest	1,154.00	52	275	38	..	..	..	..	212	35	6	22
50	Tista Bazar D. I. F., P, D, P O	82.04	385	1,615	342	23	..	..	..	107	387	84	1,014
51	Mangber Forest	1,163.00	29	120	18	..	..	..	..	29	27	..	64
52	Kalimpong Khasmahal 2P	1,860.02	659	3,578	840	1,518	936	562	..	80	31	29	422
53	Kalimpong Bazar D. I. F. (Muni- cipality)	56.00	Included in Urban Area										
54	Development Area (Munici- pality)	1,860.81											
55	Bong Khas- mahal 3P	1,145.52	336	1,849	426	1,087	384	262	..	43	..	7	66
56	Yokprintam Khasmahal 2P	1,042.41	100	438	38	360	55	10	..	8	..	..	5
57	Siokbhir Khas- mahal	1,381.91	143	837	96	664	154	..	..	7	..	..	12
58	Samalbung Khas- mahal P	1,308.55	198	1,091	105	750	313	28	..	..	..	..	..
59	Lulagaon Khas- mahal	1,096.31	95	505	31	311	173	19	..	..	..	..	2
60	Pemling Forest P.	1,241.00	1	6	1	..	..	..	..	6	..	..	..
61	Pemling Khas- mahal 2P	2,550.17	149	766	70	434	152	180	..	..	..	..	..
62	Nimbong Khas- mahal and D. I. Fund Area, P	4,983.90	159	840	165	744	85	..	..	1	..	..	10
63	Pabringtar Khas mahal	4,222.16	132	678	9	617	60	..	..	..	..	..	1
64	Samther Khas- mahal P	2,280.55	156	897	80	826	67	..	..	..	..	..	4
65	Singi Khasma- hal	1,472.96	122	753	79	584	154	1	..	..	..	..	14
66	Tunang Forest	1,870.00	3	3	3	..	..	..	..	..	..	3	..
67	Comesi Forest	1,531.00	5	11	3	..	..	..	..	11	..	..	..
68	Ringkingpong P	1,535.00	67	229	15	161	1	..	..	61	1	..	5
69	Tashiding Forest P	1,480.00	22	88	16	..	..	..	..	52	22	9	5
70	Kalimpong Road Station (Giellekhola)	1.80	30	191	41	..	..	..	..	5	..	9	177
71	Riyang Forest	23.68	75	166	45	..	..	..	..	162	1	..	3
72	Turzam	265.00	30	181	20	41	..	..	..	134	..	..	6
73	Rambi Bazar D. I. F.	8.59	58	142	76	..	..	..	..	13	58	2	69
74	Riyang Market	Included in Riyang Forest	13	38	19	..	..	..	..	1	13	11	13
75	Riyang Railway Station	0.75	24	101	20	..	..	..	..	3	..	25	73
76	Birik Forest	1,277.00	37	128	5	..	..	..	..	53	1	36	38
77	Maseok Forest	2,251.00	35	112	14	73	..	..	..	32	..	2	5

L. o.	Name of Village or Town/Ward	Area of Village or Town/Ward in acres	No. of occupied houses	Popu- lation	No. of literates	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14

11 P. S. Kalimpong—concl'd.

78	Suruk Khasmahal	2,371.15	155	784	72	374	410	..	..	..	..	..	..
79	Suruk Forest	7,776.95	187	1,025	85	633	368	23	..	1	..	..	..
	Yangmakun Khasmahal		1	3	1	..	..	..	..	3	..	..	..
	Yangmakun Forest												
80	Gulling Forest	1,120.00											
81	Panbu Forest	2,051.00	1	1	1	..	..	..	..	1	..	..	..
82	Mangpong Forest	6,617.00	25	129	2	..	..	..	..	113	..	..	16
83	Lish Forest	4,684.00	67	634	65	..	..	..	..	514	64	15	41
84	Nobgong Khasmahal	2,482.79	52	318	15	245	56	15	..	2	..	..	..
85	Churanthi Forest	4,566.00	10	46	5	..	..	..	..	45	..	..	1
86	Ramthi Forest	4,146.00	}										
87	Samther Forest	1,230.00											
88	Lulaguon Forest	1,529.00											

Calimpong Municipality 4P, 2S, 4H, D, 2Rh, PO, MA.

Ward No. I	..	255	1,211	698	..	..	..	..	145	384	53	629
Ward No. II	..	302	4,435	616	58	..	..	..	348	324	50	655
Ward No. III	..	194	1,114	703	..	..	..	..	281	495	30	308
Ward No. IV	..	124	530	218	..	..	..	..	132	218	11	169
Ward No. V	..	297	1,544	477	..	..	..	..	433	513	59	539
Ward No. VI	..	375	1,851	819	6	28	..	..	406	819	30	562
Ward No. VII	..	258	1,118	215	..	..	..	..	101	151	63	803
Ward No. VIII	..	158	969	280	12	..	..	..	82	123	18	734
Ward No. IX	..	122	662	343	37	1	..	..	111	26	51	436
Ward No. X	..	1,159	6,243	1,911	469	9	1	..	839	466	184	4,275
<hr/>												
Total	..	3,244	16,677	6,280	582	38	1	..	2,878	3,519	549	9,110
<hr/>												
Rural	..	11,538	59,786	9,551	30,259	10,365	3,773	43	8,131	1,214	478	5,523
Urban	..	3,244	16,677	6,280	582	38	1	..	2,878	3,519	549	9,110
<hr/>												
Grand Total	150,677.99 acres or 235.43 sq. miles	14,782	76,463	15,831	30,841	10,403	3,774	43	11,009	4,733	1,027	14,633

12 P S Garubathan

1	Ruka Forest	4,467.00	1	1	1	..	..	..	1	..	..	..	..
2	Today Tangla Khasmahal 3P	4,992.27	144	813	143	740	72	..	..	..	..	..	..
3	Patengodak Khasmahal 2P	4,978.42	204	1,049	86	807	164	69	..	..	..	..	9
4	Paren Forest	3,613.00	8	23	4	..	..	..	..	10	..	..	13
5	Rangu Forest 3P	4,662.00	3	8	4	..	..	..	..	6	..	..	2
	Rangu Cinchona Plantation		543	2,872	622	..	..	..	..	2,589	8	..	75
6	Chichu Forest	1,215.00	}										
7	Thosum Forest	2,454.00											
8	Rechila Forest	6,327.00											
9	Rechila Chak Khasmahal	277.00											
10	Pankhasari Forest	3,356.00											

J. L. No.	Name of Village or Town/Ward	Area of Village or Town/ Ward in acres	No. of occupied houses	Popu- lation	No. of literate	I	II	III	IV	V	VI	VII	VIII
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<i>12 P. S. Garubathan —conold.</i>													
11	Pankhasari Khasmahal	5,895.28	265	1,385	115	1,184	129	13	..	15	7	..	37
12	Sanabiyong T. E., P	1,747.93	96	509	89	2	60	..	..	436	..	..	17
13	Pashuting Khas- mahal	580.61	24	148	14	92	33	..	..	21	..	..	2
14	Nim Khasmahal 2P	2,583.74	100	578	24	440	134	..	..	..	..	..	4
15	Pagranghong Khasmahal	4,457.51	105	700	87	646	54	..	..	..	..	..	..
16	Lehti Forest	4,581.00	54	114	13	..	..	..	..	111	1	..	2
17	Noam Forest	3,373.00											
18	Pogu Forest	4,338.00											
19	Fagu T. E. (Upper)	1,247.83	277	1,153	280	..	..	..	..	1,011	85	..	57
20	Mal Khasmahal	347.48	28	112	23	69	22	..	..	..	12	..	9
21	Mal Forest	6,176.00	77	283	40	..	..	..	..	278	..	..	5
22	Fagu T. E. (Lower)	562.83	235	949	101	..	..	..	..	921	4	..	24
23	Darjeeling Hill (Dooars) T. E. (Mission Hill T. E.)	901.15	145	675	34	..	..	..	..	675	..	..	..
24	Sakam Forest	2,208.00	Uninhabited				585	363	119	..	5	..	..
25	Gornubhan Khasmahal, 2P, Rh	2,025.19	261	1,129	194	..							
26	Dalingkot Forest	1,906.00	1	1	1	..	..	..	..	1	..	..	..
27	Dalingna Khas- mahal	641.12	41	220	41	191	29	..	..	..	..	..	..
28	Anbeok T. E.	900.00	112	560	171	..	..	..	..	542	3	9	6
29	Anbeok Forest	1,234.00	1	4	1	..	..	..	..	4	..	..	..
30	West Nar Forest	5,452.00	Uninhabited				347	..	..	40	4	..	41
31	East Nar Forest	7,815.00	83	432	44	..							
32	Mo Forest	5,022.00	10	18	..	..	..	..	..	18	..	..	..
33	Sansing Khas- mahal	1,414.74	41	479	59	279	190	9	..	..	..	..	1
34	Kumai Khas- mahal	2,664.27	86	531	112	382	117	9	..	7	5	..	11
35	Kumai T. E. 2P	2,122.83	522	2,291	464	1	..	..	..	2,189	10	15	76
36	Khunam Forest	3,878.00	56	141	10	69	24	7	..	12	3	..	26
Total (Entirely Rural)		110,417.20 acres or 172.53 sq. miles	3,523	16,978	2,777	5,487	1,738	226	..	3,892	142	24	489

